FEBRUARY 16, 1959

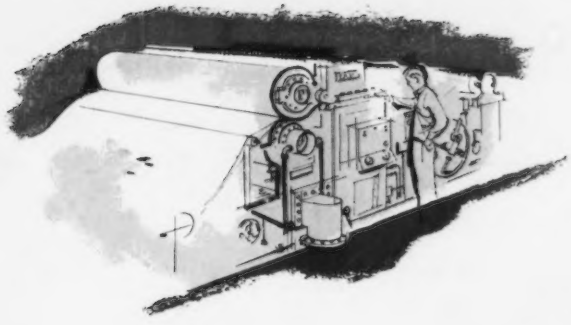
PAPER TRADE JOURNAL

Modern Swiss Paper Mill Has Many Interesting Features

Three Methods for Improving Dimensional Stability of Paper

Materials Handling Methods Boost Interest in Skid-Resistant Cartons

How S. D. Warren Utilizes Soda Hardwood Pulp Efficiently



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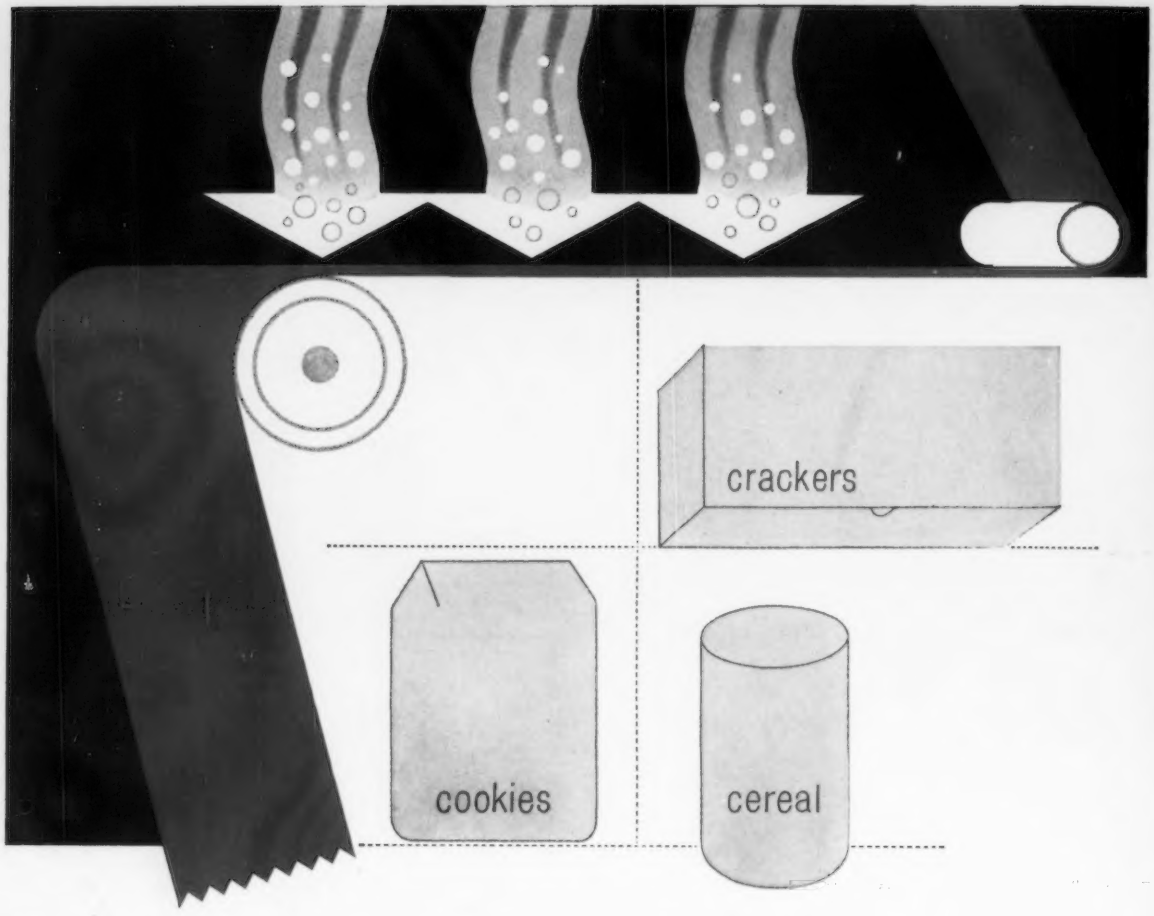

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Now you can offer your customers in the food industry packaging materials that will increase their products' shelf life, effectively and economically. When used to impregnate food packaging materials, Ionol CP antioxidant guards against rancidity by retarding the attack of oxygen on fats at the surface of cartons and wrappers.

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Offer your customers this effective, new packaged goods protection. Write for technical bulletins IONOL CP (SC:58-84) and IONOL CP FOR PAPER AND PAPERBOARD (SC:58-85), or contact your nearest Shell Chemical district office for additional details.

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SHELL

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Microstructural study of raw steel BEFORE heat treating. Photomicrographs are 400 x magnifications using Picric acid etching reagent.

Microstructural studies of cutting edge area and ears AFTER heat treating illustrating uniformity of hardness throughout.

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In the manufacture of Jordan Fillings, Bolton controls the entire process. Starting in the laboratory, a photomicrostructural analysis is made of each shipment of Jordan steel. Destructive mechanical properties tests are made, which must fall within the rigid tolerance standards established. During production, non-destructive tests assure the desired properties previously determined are achieved during heat treatment.

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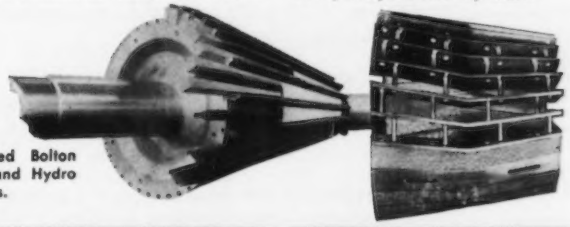
Fifty two years of specialized Jordan Fillings experience is built in to every knife. So is the craftsmen's attitude — an attitude of conviction that none will deliver longer, more economical, day in day out resistance to wear than BOLTON MICROLYZED FILLINGS . . . RING TYPE — WEDGELESS — HYDRO-TRUSS. *All are made by John W. Bolton & Sons, Inc., Lawrence, Mass.*



Partially assembled Bolton Wedgeless Plug and Hydro Truss Shell Fillings.

The Papermaker suggests:

Write today for Bulletin No. F-556 on Bolton Microlyzed Fillings. It has full information on:

- *Wedgeless Plug Fillings*
- *Hydro-Truss Shell Fillings*
- *Ring Type Fillings*
- *Special Heat-Treated Steel*
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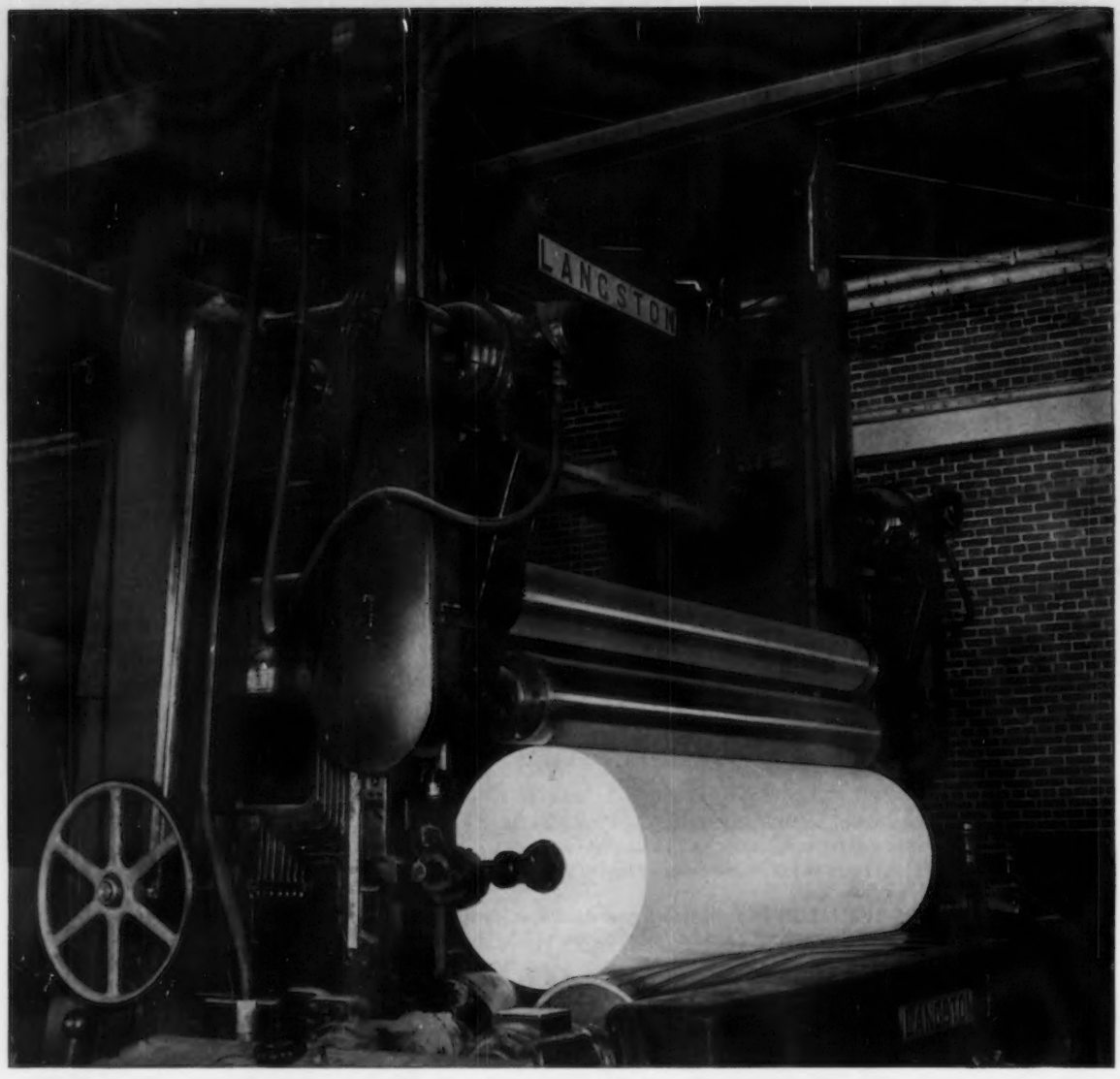

Langston Slitter and Winder features precision roll density control

Here's a way for you to get uniform roll density from the core to the outside. This type "DH" Slitter and Winder features hydraulic rider roll control that automatically adds or subtracts rider roll weight.

This arrangement makes it possible to constantly maintain correct nip pressure to compensate for the changing diameter and weight of the rewound roll. A simple valve permits setting the correct rider roll weight for various grades and basis weights of both paper and board.

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PAPER TRADE JOURNAL

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REMEMBER THESE DATES

Feb. 23-26, 1959: Paper Week in New York

March 8-11, National Paper Trade Ass'n., Annual Meeting, Waldorf-Astoria Hotel, N. Y.

June 2-4, American Pulp and Paper Mill Superintendent's Ass'n., National Meeting at the Shamrock Hilton Hotel, Houston, Texas.

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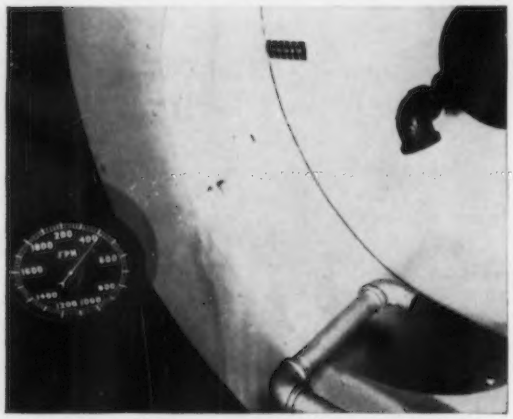
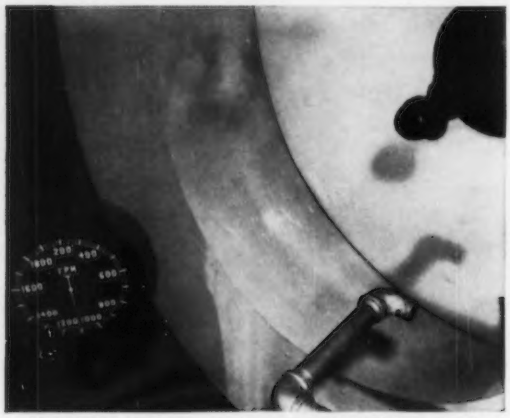
Have you ever seen what actually goes on inside a paper machine dryer?

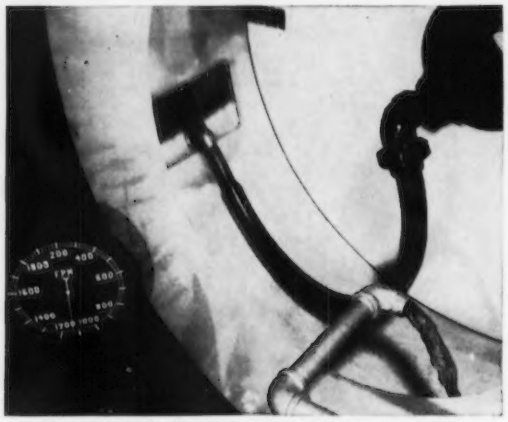


As seen in the Armstrong test dryer, a 2" pool of condensate remains in a pool at the bottom at 400 ft. per min. surface speed.

At 700 ft. per min. surface speed a 1" pool of condensate climbs the wall of the dryer.

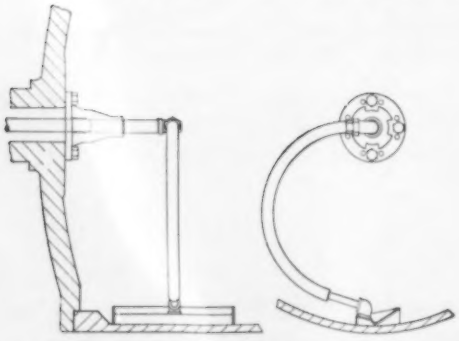


At 1100 ft. per min. surface speed the 1" pool of condensate rims, forming a uniform thickness over the dryer wall surface.



At any speed the Armstrong Siphon Scoop removes condensate. At rimming speeds it holds condensate rim to a maximum thickness of 1/16".

New Armstrong Sound, Color Movie Shows All



Star of the Armstrong "Condensate Behavior" movie is the Armstrong Siphon Scoop. The above drawings show the scoop in side and end views as installed in a dryer.

The photographs above are from a new 16 mm, 15 minute sound color movie entitled, "Condensate Behavior in Rotary Dryers." For the first time, you can now see what goes on inside a dryer at a wide range of speeds. You can see why conventional siphons lose efficiency at surface speeds over 700 ft. per min. You can see the Armstrong Siphon Scoop remove condensate at any speed.

If you have a dryer drainage problem, we will be glad to lend you a print of this film. Contact your local Armstrong Representative or write:

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Manufacturers of Armstrong Inverted Bucket Steam Traps

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SYNTHO-ASBESTOS Dryer Felts

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(Approx. 25% Synthetic Content)

They insure excellent drying, combined with unusually high resistance to thermal, chemical and mechanical degradation.

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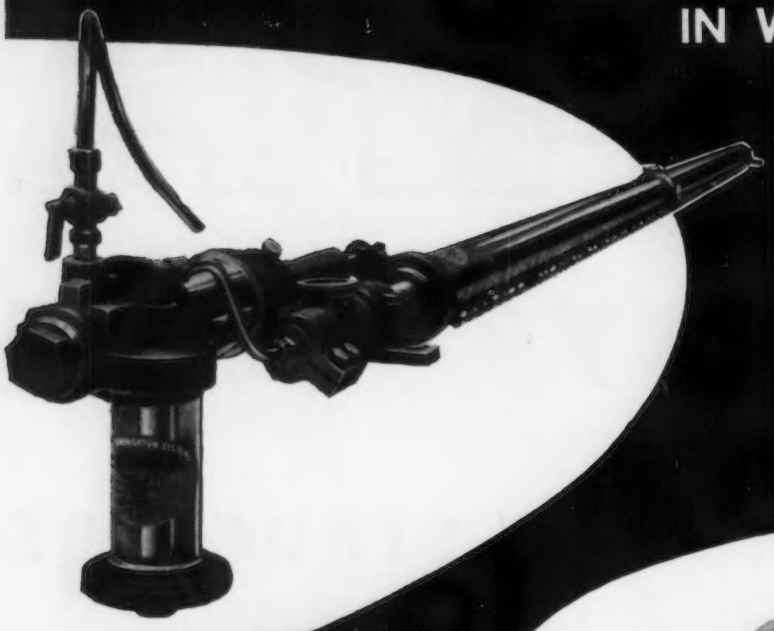
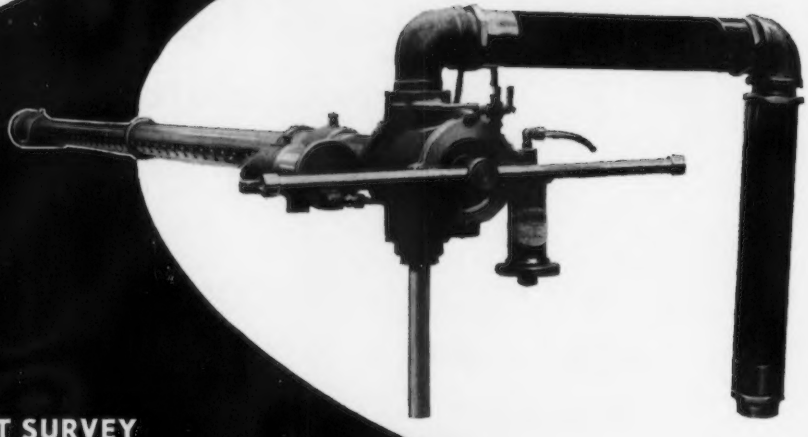


This is the rule, not the exception, with mills using BROUGHTON oscillating fresh water and whitewater showers



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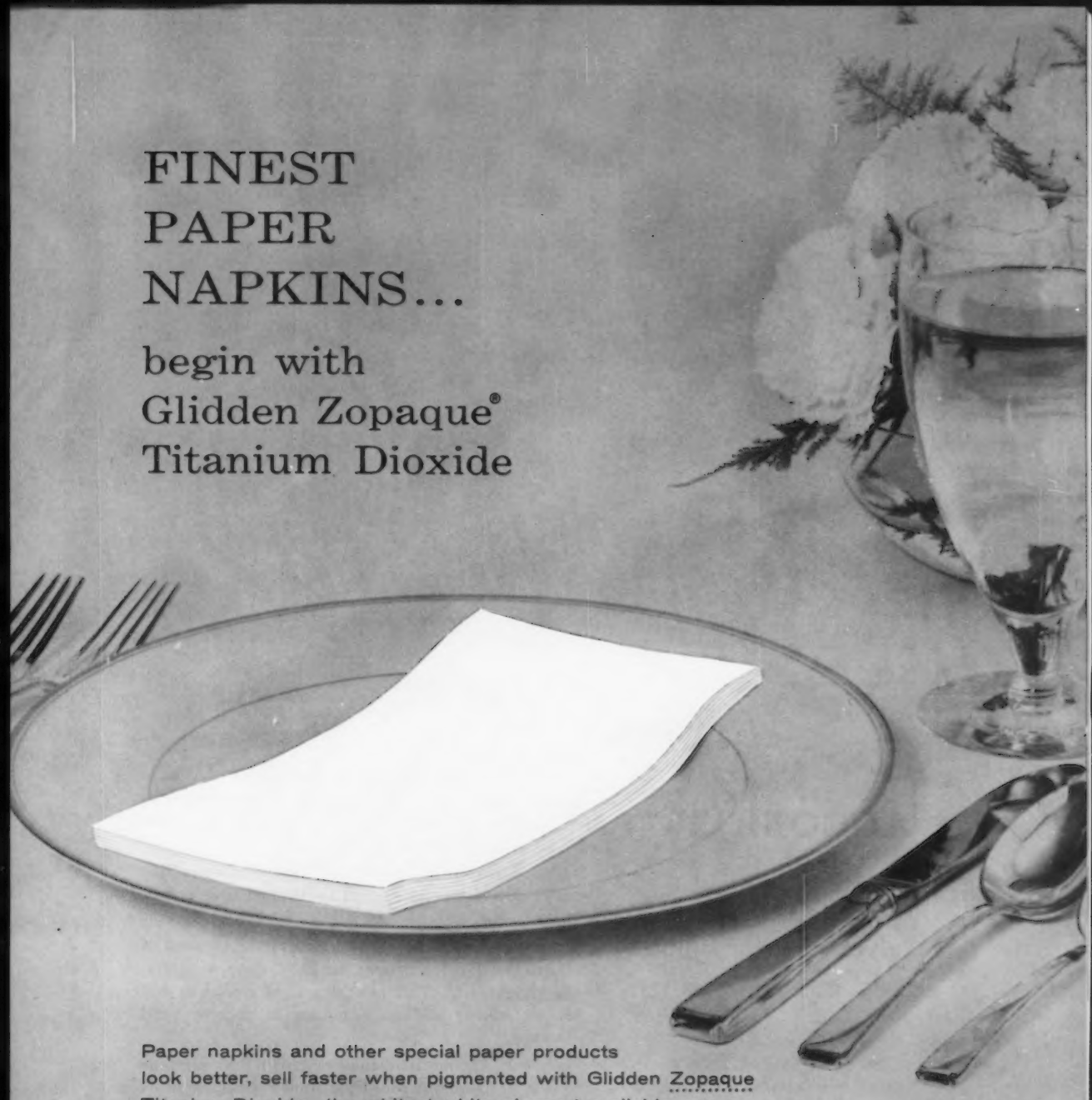

Paper napkins and other special paper products look better, sell faster when pigmented with Glidden Zopaque Titanium Dioxide—the whitest white pigment available.

Zopaque imparts high opacity, gives maximum whiteness and brightness to any paper product. And the finer, consistently uniform Zopaque particles are readily dispersible.

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New
ACCOBRITE®
Rosin Size
4028
gives superior sizing at low cost

Paperboard mills throughout the country that have tried Cyanamid's newest unfortified gum rosin size report that it has proved to be outstanding in economical and efficient performance.

In many mills, this new ACCOBRITE® Rosin Size 4028 provides results equal to fortified sizes and *at lower cost.*

ACCOBRITE 4028 has low foaming qualities. One of the lightest colored sizes made, it gives a lighter, brighter board. This new size is produced as 80% solids, saving additional money in shipping and storage.

Evaluate ACCOBRITE 4028 in your own mill. Drop us a line, or telephone your Cyanamid Paper Chemicals representative. He is ready to help you with the best background of experience in the industry. And remember, Cyanamid has a *complete* line of sizes . . . light and dark, fortified and unfortified, liquid and dry. We can suggest the suitable size for all your needs.

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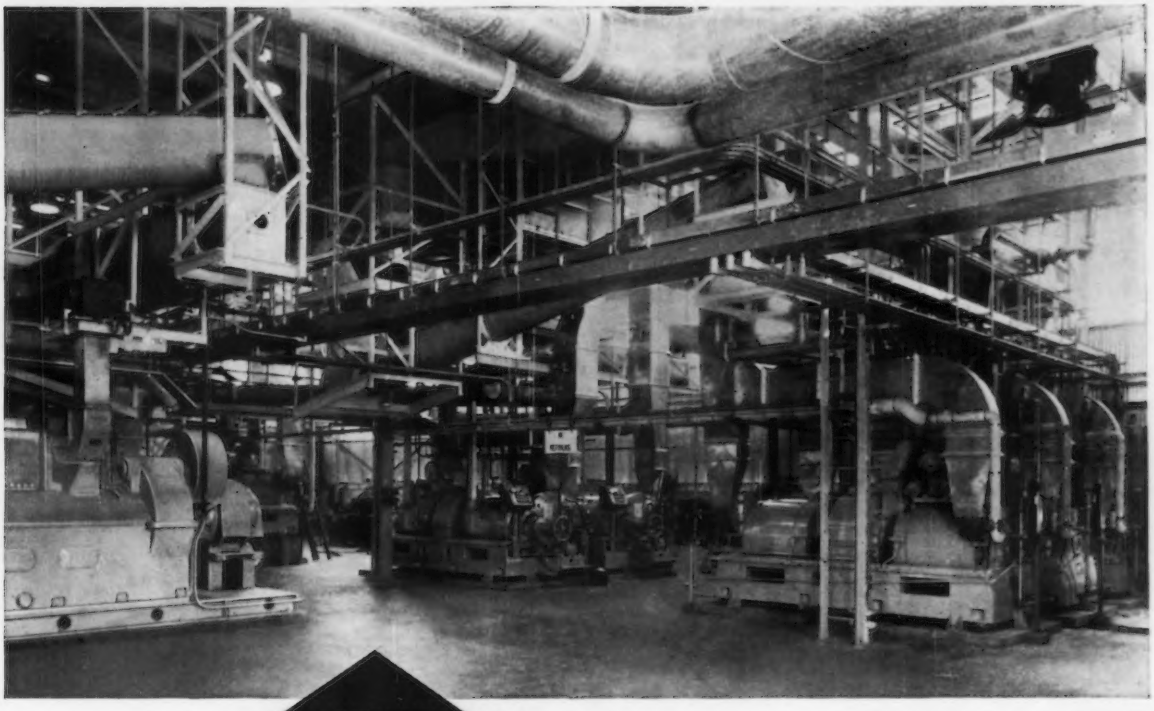


Bauer double revolving disc refiners and Pressafiners, a portion of the Bauerite equipment installed at Diamond Gardner's pulp mill in Red Bluff.

ANOTHER

Bauerite

INSTALLATION

High wood utilization keynotes the ultra new Diamond Gardner Plant at Red Bluff, California. The integrated pulp mill produces molding pulp with the Bauerite Process of making groundwood pulp from chips.

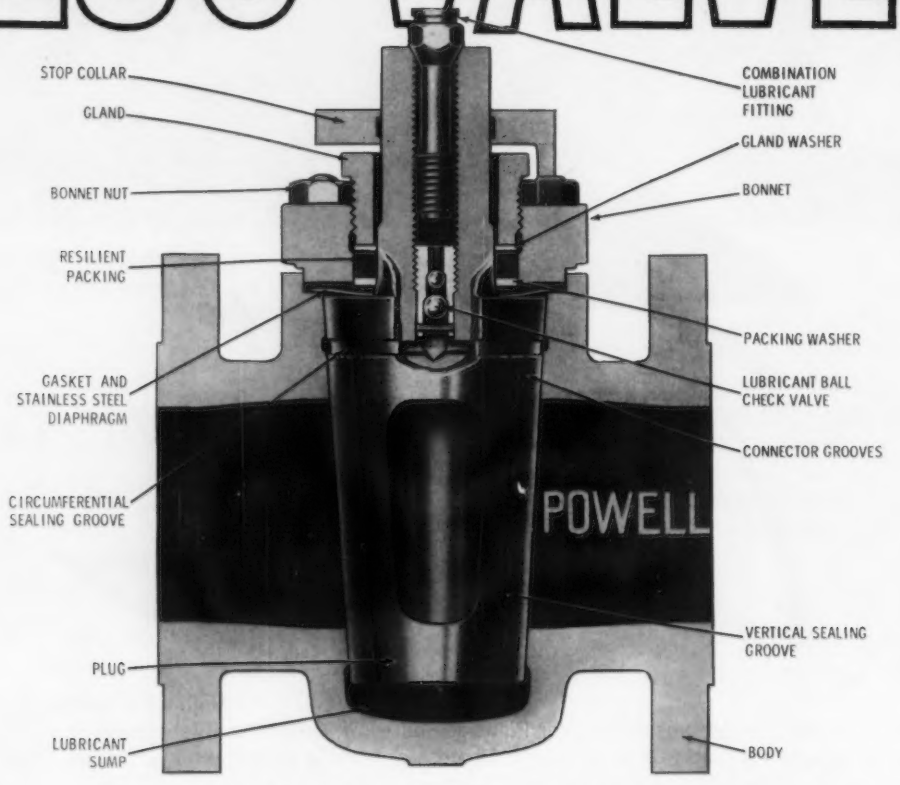
One of the advantages of this process is its ability to utilize locally available raw materials. This includes residue from wood processing operations, as well as species of wood suitable for conventional grinding and many species formerly considered unsuitable.

The Bauerite Process opens new horizons in two ways. It can breathe new life into mills faced with a dwindling supply of regularly used raw materials. On the other hand, it also permits location in new areas, closer to markets being served. May we send you more information?

The Bauer Bros. Co., 1758 Sheridan Ave., Springfield, Ohio

POWELL

LUBRICATED PLUG VALVES



Sectional view Powell Screwed Gland Lubricated Plug Valve.

Like all Powell Valves, Powell Lubricated Plug Valves are superior in their field . . . and have many advantages over other conventional types of Valves.

- Simple design: only three basic parts—Body, Bonnet, Plug.
- Quick, complete shut-off—a quarter turn will close or open the valve.
- Tapered Plug assures positive seating.
- Machined surfaces of plug and body are not exposed in the open position. Any media adhering to the plug when in the closed position is removed when plug is rotated.
- Cavity-free straight passage assures streamlined flow in either direction. Scale and sediment cannot collect.

Powell Lubricated Plug Valves are available in sizes ½" through 16", depending on the type required—Semi-steel 175 and 200 pounds WOG;—Carbon Steel ASA 150 and 300 pounds.

Powell can also furnish Lubricated Plug Valves in other alloys on special order.

For all your valve needs, make it a policy to consult your local Powell Distributor—or write directly to us.

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If one of our patents can help you, we'll be glad to license the rights to you **perpetually,** for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important – you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

What do **we** get? You as a **customer** – we hope – but there's no obligation on your part. Just seems to work out that way, though – when we know enough about a particular peroxygen to hold a patent on its use, chances are we've also learned enough to produce it purer than anyone else. You benefit from this; we do, too.

Use the coupon below to ask for a Sales Engineer – or our list of patents – that may help you solve an important problem.

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- ☐ Please have a Sales Engineer call.

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No. 31 – Groundwood Bleaching Variables – A Statistical Approach.

No. 32 – H_2O_2 Bleaching of Chemicals and Mechanical Pulps.

No. 47 – Peroxide Bleaching of Pulps.

No. 48 – High-Density Pulp Bleaching.

No. 64 – Development Studies on Last-Stage H_2O_2 Bleaching of Alkaline Pulps.

No. 65 – Peroxide Bleaching of Southern Pulps.

No. 66 – Becco Laboratory Procedures for Pulp Bleaching, 1955 Ed.

No. 91 – Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps.

No. 92 – Peroxide Bleaching of Chemical Pulps.

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New Cold Caustic Bleach Process

Looking for a way to use greater amounts of low-cost, more plentiful pulp—without capital investment for bleach equipment? Then let a Becco Sales Engineer show you our new technique* which allows you to bleach in the same equipment regularly used for the manufacture of cold caustic pulp.

In this new process, peroxide bleach liquor is added at the Bauer Refiner, and bleaching occurs during the refining operation. Bleach response depends on refiner densities.

Up to 20 points brightness increase has been obtained in commercial operations to date, and with no additional steam costs, no holding time, and no excessive chemical costs.

Becco can assist you immediately in setting up a production run and evaluating results. First step: use the coupon to let us know you're interested.

*—Patent Pending

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Station B, Buffalo, New York
Dept. PTJ-H

Gentlemen:
Please have a Sales Engineer give me more information on Becco's Cold Caustic Bleach Process.

NAME_____

FIRM_____

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CITY_____

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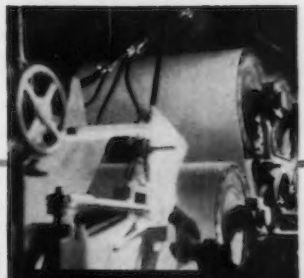

How BRIGHT Is BRIGHT?

That's a hard question to answer. It depends on how the pulp is treated.

Trouble is, paper can show an 86 level at the layboy, but by the time the paper is delivered, this has dropped to 82 or lower. With conventional bleaching methods, that is.

Many chemical pulp producers have found the answer to this problem in Becco's Dryer Steep Bleaching Process (patented, but licensed perpetually for one buck). Applied by means of spray pipes across the pulp sheet ahead of the dryers, Becco Hydrogen Peroxide increases brightness permanence and bleaches in transit. Often, in fact, an 86 layboy level **improves** to 88 by delivery time.

This is just one example. Becco has a vast amount of technical knowledge compiled from 31 years of experience with all types of pulp. If you'd like help with your pulp, free of any obligation, let us know with the coupon below.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York
Dept. PTJ-C

Gentlemen:
We **would** like help with our pulp. Please have a Becco Sales Engineer call.

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FIRM_____

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. . . results in superior paper mill cores!

Sonoco quality control begins in our own paper mills. Here the core stock for paper mill cores is made to rigid Sonoco specifications. Throughout our completely integrated manufacturing facilities, quality can be, and is, carefully maintained from raw material to finished product. The end result is that Sonoco cores deliver the kind of uniform, trouble-free performance that adds up to cost savings in use.

DUROLENE CORES: Premium Sonoco quality. Available as a non-returnable core in all diameters and lengths, or returnable with Bermico metal ends in standard sizes.

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Both Durolene and Duro cores guarantee ultra-high torque and crush strength, plus close tolerances to all dimensions.

Specialty cores, from ¼" I.D. and up, in lengths to 24'. Supplied in colored stock or with special inside or outside wrap, plain or printed.

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1865

GOOD TIME FOR HARD LOOKS

at needless chlorine costs

Columbia-Southern's manufacturing and servicing experience with quality chlorine may help you achieve appreciable savings on former costs. Isn't this the ideal time to see if your chlorine purchase and use practices aren't costing more than necessary?

Let's take the *quantity* of chlorine you are currently buying and handling. Is your operating volume most economically adapted to tank car, barge, ton tank, or cylinder delivery? Are you quite sure that new or projected changes in your products or processing won't change this picture? Do you have all the facts on completely up-to-date unloading techniques and equipment?

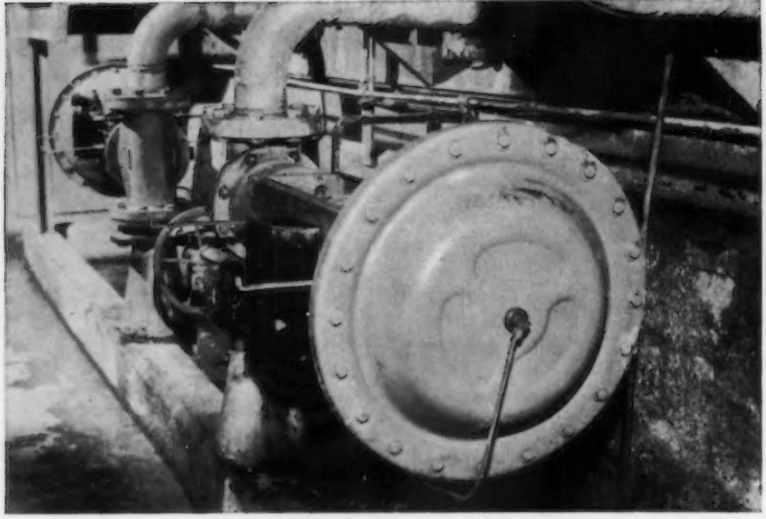
Let's look at the uniform *quality* of the chlorine you are receiving. Here again, Columbia-Southern can advise you with recognized authority as the country's leading merchant producer. As a matter of record, we have led in developing such vital improvements in chlorine transportation as the fusion-welded tank car, the 55-ton single unit car, the safety-dome platform, the industry's first large capacity barge fleet for inland waterways delivery, and other user economies or safety features.

Our well-grounded Technical Service specialists, too, have helped customers save on needless chlorine costs. One valuable aid, for example, is their extremely thorough yearly inspection of your unloading, storage, and use operations. Isn't it simple good business, especially now, to see what savings they might work out for you? You may request their services either through our Pittsburgh address, or any of the fourteen Columbia-Southern District Sales Offices.

The Columbia-Southern Chemical Corporation, One Gateway Center, Pittsburgh 22, Pennsylvania. Offices in principal cities. In Canada: Standard Chemical Limited.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION A Subsidiary of Pittsburgh Plate Glass Company

Found:
a valve responsive to sensitive instrument control, with low maintenance



Grinnell-Saunders Straightway Diaphragm Valves on back of Trimbey meter on Mead Corporation's No. 10 paper machine.

Grinnell-Saunders Straightway* Diaphragm Valves were originally selected by Mead Corporation for stock level control at its Chillicothe, Ohio paper making plant. Mead's instrumentation specialists wanted a valve which would provide fine control in response to sensitive instruments.

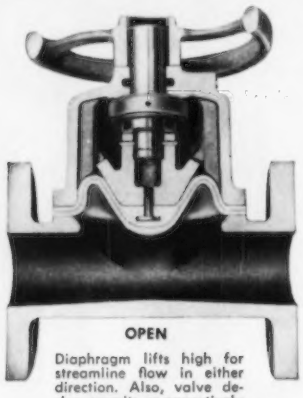
Because these Straightway Valves also avoid difficulties from clogging, stringing and dewatering as well as leakage, plugging, sticking and erosion, they have since been specified for other services throughout the plant.

Grinnell-Saunders Straightway Diaphragm Valves solve tough problems in many piping systems. They provide special benefits in lines handling corrosive fluids, viscous material, fibrous slurries, sludges, solids in suspension and semi-fluid materials.

These highly efficient valves provide streamlined flow, positive closure, complete isolation of operating mechanism, minimum maintenance, interchangeability of parts, manual or power operation, and a choice of body lining and diaphragm materials.

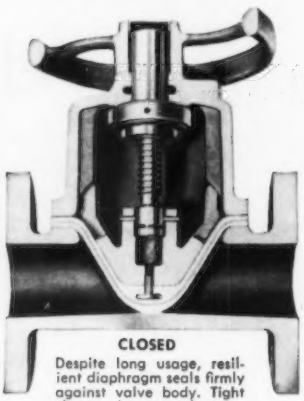
For complete information on straightway or standard weir types, handwheel, lever, or power operated, write Grinnell Company, Inc., 277 West Exchange Street, Providence 1, Rhode Island.

*PATENTED



OPEN

Diaphragm lifts high for streamline flow in either direction. Also, valve design permits comparatively simple rodding through, when necessary.



CLOSED

Despite long usage, resilient diaphragm seals firmly against valve body. Tight closure is assured, even when handling gritty or fibrous materials.

GRINNELL-SAUNDERS DIAPHRAGM VALVES

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

Courtesy: Republic Steel Kitchens

Alpha® Protein...

for faithful reproduction at reduced cost

When print is used to sell big-ticket merchandise where wife-saving features are a factor, those features must be portrayed with authenticity. See here how this kitchen scene reflects sturdy equipment, lustrous stainless steel drawer and door pulls, contoured edges, and a beautiful baked enamel finish.

Crisp detail is brought into sharp focus on Alpha Protein-processed paper. Its whiter, smoother and more uniform surface offers the best opportunity for faithful reproduction of fine detail.

Alpha Protein, a processed vegetable protein adhesive, is rigidly controlled at all stages of manufacture for absolute uniformity. It improves paper quality and lowers production costs. Write or call for complete information.

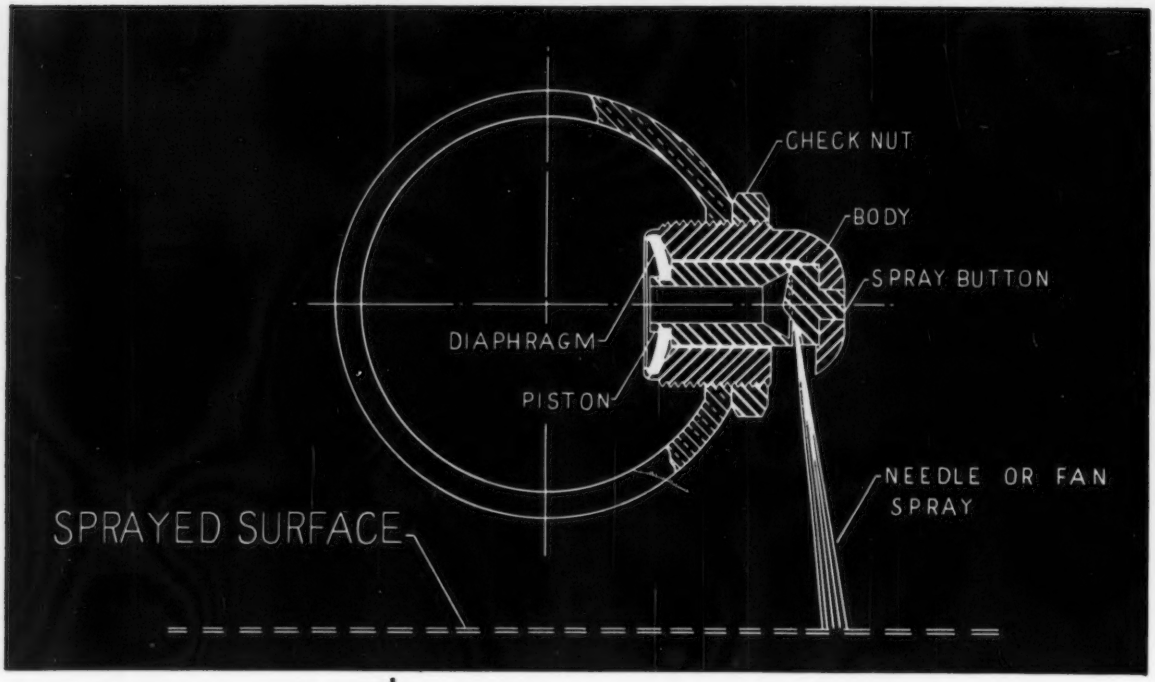
CENTRAL SOYA COMPANY, INC.

Chemurgy Division

1825 N. Laramie Avenue • Chicago 39, Illinois

This advertisement reproduced on Alpha Protein-processed paper

Basic design of the Lodding Nozzle in operation. Large, clear passages bring the white water up to the shaping parts. Small particles if lodged cause piston to oscillate and free them.



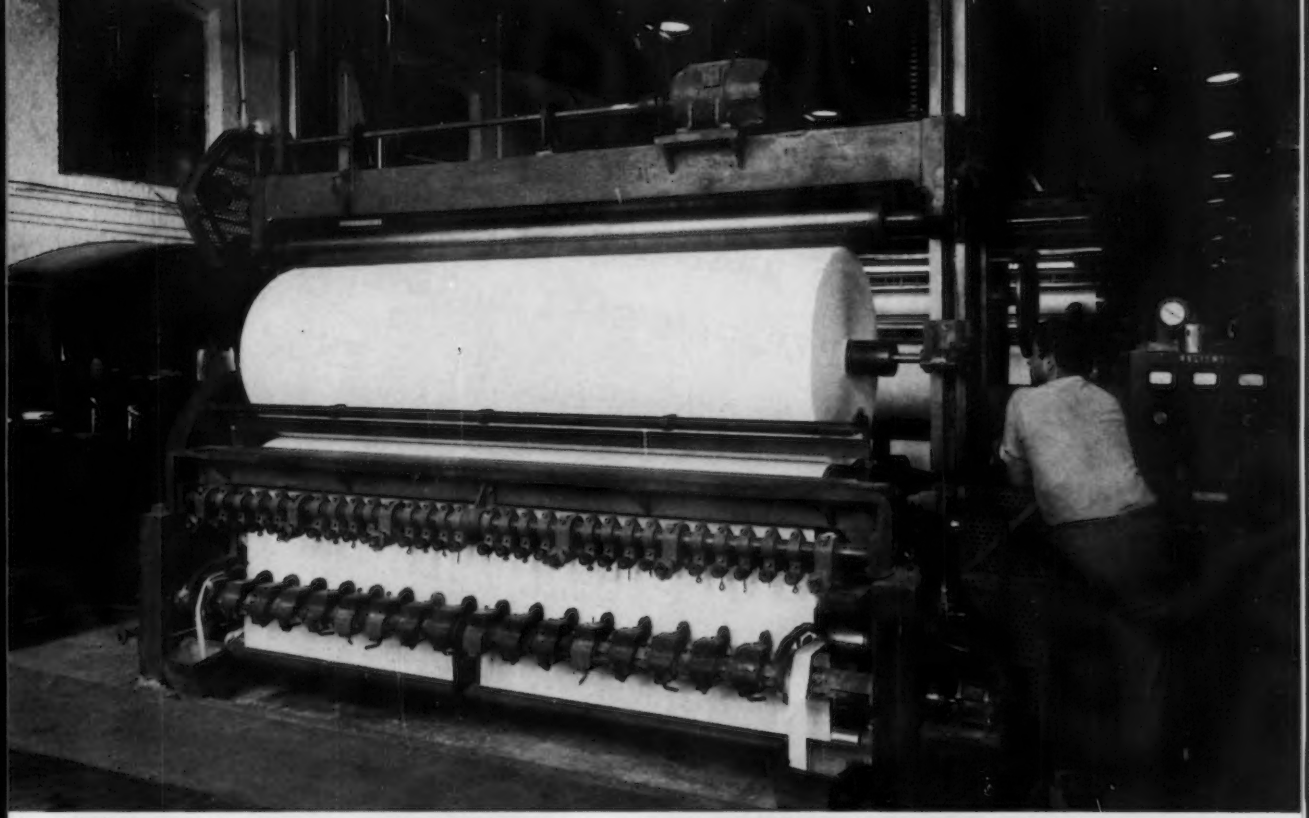
Non-Clogging Shower for White or Fresh Water

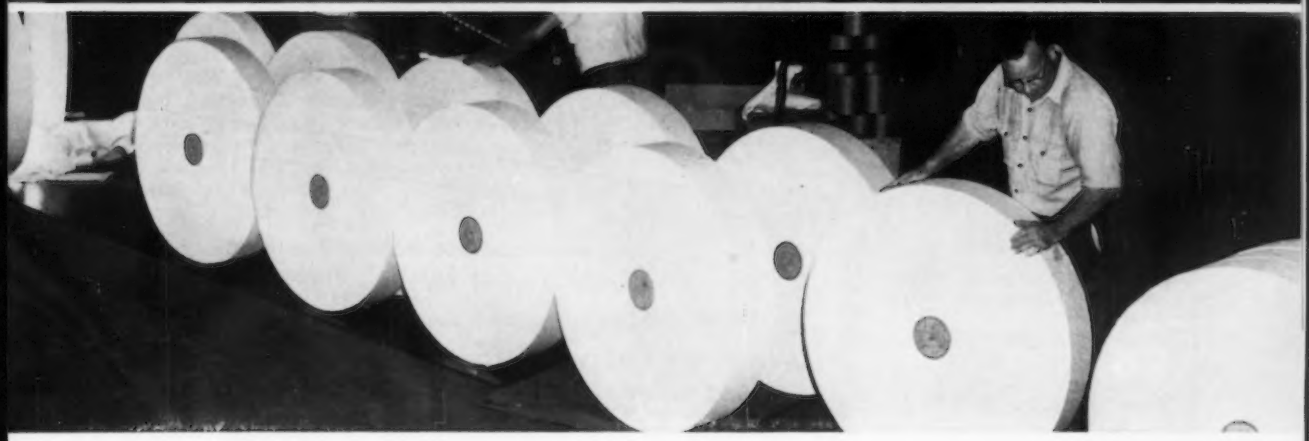
Lodding engineers, in search for a shower easy to clean when clogged, came up with a new design that is virtually non-clogging, now in successful operation.

Typical uses—foam-killing in head boxes, knock-off on fourdrinier wires, both inside and outside wire rolls, cylinder molds, screens, save-alls, felts.

LODDING ENGINEERING CORPORATION

AUBURN, MASSACHUSETTS





Slit, wound, ready to ship — one operation

These photos show how the Franconia Paper Corporation eliminated a costly rewinding operation.

You're looking at a Kidder 125-inch Master Mill Winder, installed in the Franconia plant as a paper machine slitter-winder nearly three years ago. Since then this high speed, high quality machine has been steadily producing rolls of envelope stock — as narrow as 6 inches, with diameters up to 40 inches — saving time and money every time it goes to work.

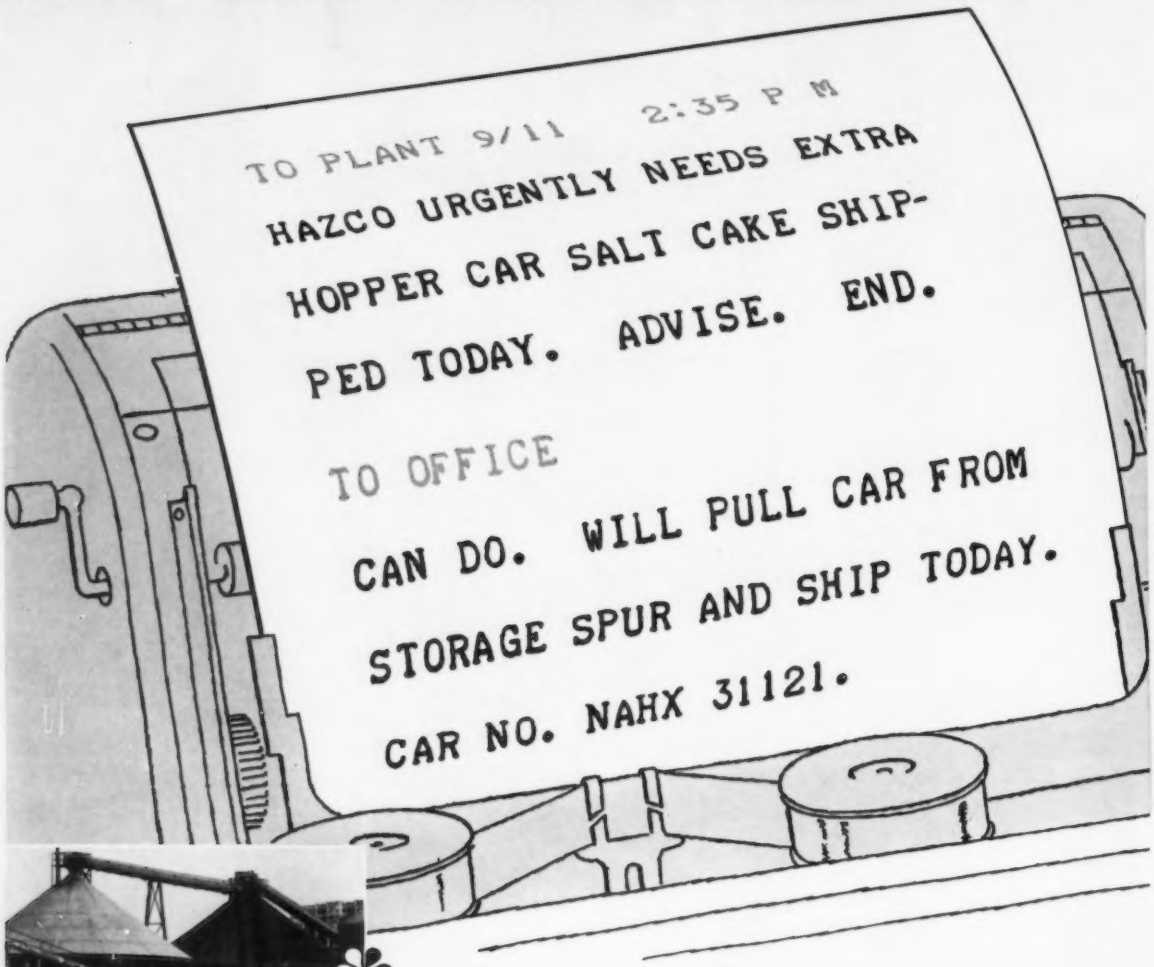
If you are producing similar rolls — and still rewinding them as a separate operation — it will pay you to find out how surely and easily you can cut your finishing room costs. Write today to Kidder Press Company, Inc., Dover, N. H. Eastern Sales Office: Empire State Bldg., New York 1, N. Y. Mid-West Sales Office: 400 Washington Bldg., Madison 3, Wis. West Coast Representative: Bojanower Machinery Service Corp., 5270 E. Washington Blvd., Los Angeles 22, California.

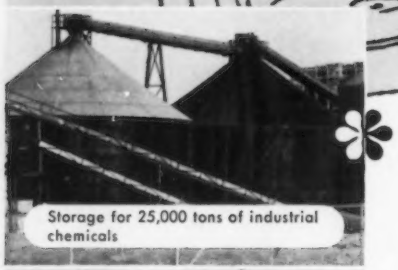
Make Good Impressions Faster with

Kidder

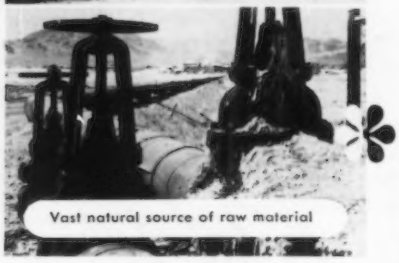
Flexoprinter,® Letterpress, and Gravure Presses, Slitters and Rewinders

West End "fills the order"...


TO PLANT 9/11 2:35 P M
HAZCO URGENTLY NEEDS EXTRA
HOPPER CAR SALT CAKE SHIP-
PED TODAY. ADVISE. END.
TO OFFICE
CAN DO. WILL PULL CAR FROM
STORAGE SPUR AND SHIP TODAY.
CAR NO. NAHX 31121.


Storage for 25,000 tons of industrial chemicals

Immediate shipment in leased hopper cars


Vast natural source of raw material

Meeting service requirements to the letter and producing superior salt cake of consistent chemical analysis are the essentials to which the West End organization is uniquely geared. A system of rapid communications linking our sales office in Oakland with our production, technical and shipping departments at the desert plant site permits each department head to have a complete understanding of the customer's individual requirements and to make firm commitments or provide the desired information promptly.

WEST END SALT CAKE

WEST END CHEMICAL COMPANY

EXECUTIVE OFFICES, 1956 WEBSTER, OAKLAND 12, CALIF. • PLANT, WESTEND, CALIF.

DIVISION OF Stauffer CHEMICAL COMPANY

Slimes in Paper and Paperboard Manufacture

PLAYING TWENTY QUESTIONS with the problem of whether slime is animal, vegetable or mineral points up to the fact that in paper mill practice, the word "slime" is no longer restricted to microbiological growths.

To mill men, slimes are any of the slimy deposits which may appear, ranging in content from hydrated fines and true microbiological slimes through hydrated aluminum oxide gels and entrained pitch, iron, silica and calcareous substances.

Identification Critical

Obviously, any appearance of slime in a mill system calls for *positive identification* of its substance, and *action* to bring it under control.

In appearance, it is usually difficult to detect any real difference between slime caused by bacteriological growth and that produced by masses of wet, hydrated stock and inorganic gels. Laboratory analysis is necessary to provide the detailed information required for an expert to recommend the type of control program to be followed.

Variety of Analyses Needed

Nalco Field Service Men have the training and experience needed to deal quickly and effectively with paper mill slimes. They carry test equipment to analyze your system . . . not only for microbiological activity, but also for the many organic and inorganic elements that are part of most deposits. Supplementing their on-the-spot service is the Nalco Paper Process Laboratory, a service and research center equipped for the most exacting analysis work and for comprehensive research on every phase of pulp and paper mill slime control.

Prevention vs. Remedy

Keeping slimes from forming in mill systems with a preventive program has proved by far the most economical way to operate. Waiting for the appearance of slime before applying remedial treatment invites expensive time and quality losses, as well as higher treating costs.

Microbiological section of the Nalco Laboratories.

Nalco's Year 'Round Service

Seasonal variations in slime-forming conditions make effective slime control programs anything but static in nature. Your Nalco Representative is the man to put on the job to secure positive, low-cost slime *prevention*...all year long.

Call him—or write today for Nalco Bulletin P1. National Aluminate Corporation, 6221 West 66th Place, Chicago 38, Illinois. Branches and affiliates in Canada, Germany, Italy and Spain.

Nalco CHEMICALS

Another of the 25 largest paper companies using S-W facilities and abilities for the re-covering of rubber rolls.

.....ROLL SERVICE PUTS MORE PROFIT IN PAPER

STOWE-WOODWARD, INC. Griffin, Georgia • Newton Upper Falls, Mass. • Neenah, Wisconsin
On the West Coast: HUNTINGTON RUBBER MILLS, INC., Seattle 88, Washington

Trends

December Figures Ahead of a Year Ago

Paper and board production during December amounted to 2,506,705 tons. This was 9% above the 2,299,731 tons produced in December a year ago. Paper production amounted to 1,124,352 tons, which was 7% above the 1,051,091 tons produced in December a year ago. The output of paperboard during this month was 1,139,683 tons, reflecting an 11% increase above the production of 1,031,105 tons reported for December 1957. Consumption of fibrous materials other than pulpwood, totaled 774,924 tons in December, compared to 727,336 tons in December 1957. Inventories of 973,177 tons at month's end reflected an 8% increase over end of November inventories. Consumption of waste paper amounted to 691,016 tons, as compared to the 523,173 tons consumed in December a year ago. Wood pulp production during December amounted to 1,754,575 tons as compared to 1,616,517 tons produced in December a year ago, up 8%. Wood pulp consumption in the paper and board mills during December amounted to 1,859,690 tons, compared to the 1,680,881 tons consumed in December a year ago, up 13%. Wood pulp inventories at the end of December at the paper and board mills, amounted to 545,135 tons as compared to 528,270 tons reported at the end of November. Month-end stocks of the pulp mills were 252,230 tons as compared to 273,939 tons reported at the end of November. These are the official figures from the Bureau of the Census.

Waste Paper Prices Stabilize

Waste paper prices were more stable last week than they have been for a number of months.

Paper and Board Rates for January

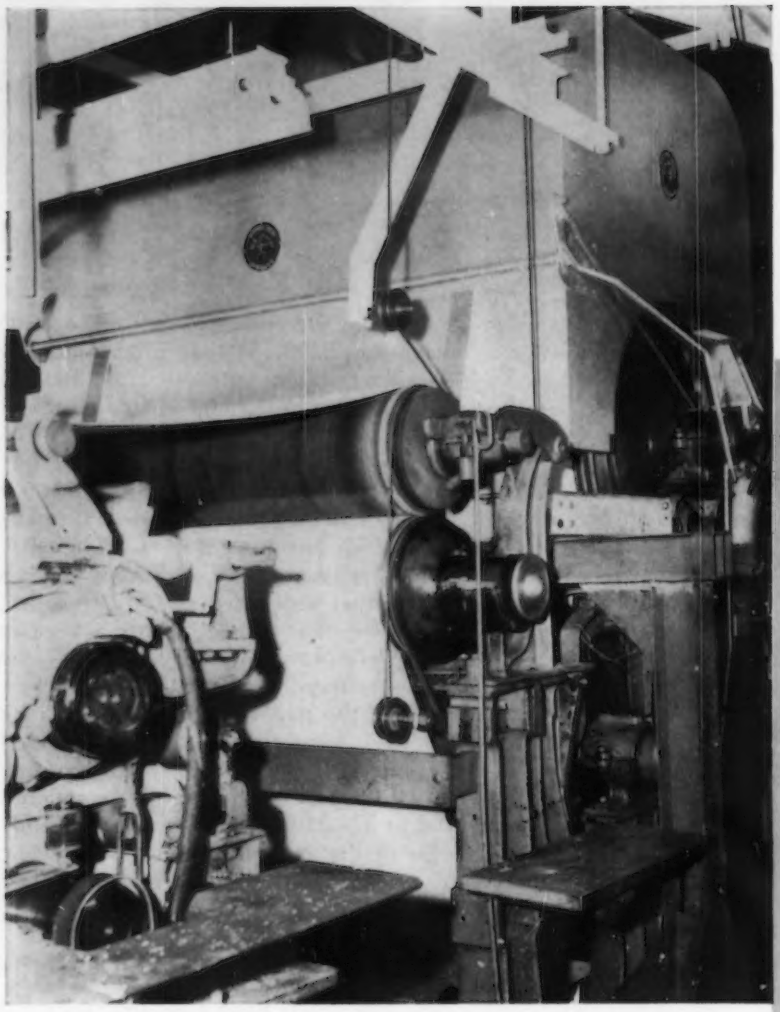
Paper and board mill operating rates were both close to 88% in January. This compares with 88% for paper and 80% for board in the first month of 1958.

Still More Mills Being Acquired

Readers of this page may be tired of our comments on the merger trends. However we feel we should draw to your attention the acquisition of two mills by existing companies and the possibility of a third acquisition. All reported on page 27 of this issue.

New Housing Bill May Benefit Some Areas

New house bill passed by Congress this week should stimulate business for our manufacturers of building board, building papers, roofing, etc. The bill provides money for public housing, veterans in rural areas and colleges having classroom construction. The bill also gives the Federal Housing Administration authority to insure $10 billion more in new mortgages. The bill faces the possibility of a presidential veto.



Where Dryer Capacity was the Limiting Factor...

The application of two Gardner Dryers increased paper machine production

40%

This increase was obtained on Gilbert Paper Company's #2 machine when Gardner Dryers were installed at the 1st top and 2nd bottom dryer positions. No other modifications were made to the machine other than the necessary felt-lead change.

If you want fast, convenient, economical expansion of your drying capacity . . . talk with Rice Barton about the Gardner Dryer!

RICE BARTON CORPORATION

WORCESTER, MASSACHUSETTS

Paper Machinery Builders Since 1837

GARDNER DRYER RICE BARTON OVERLY'S

PAPER TRADE JOURNAL

WEEK OF FEBRUARY 16, 1959

Westvaco Sells Chlorine Plant At Luke

The sale of the chlorine manufacturing facilities at the Luke mill of the West Virginia Pulp and Paper Co. to Food Machinery and Chemical Corp., New York City, was announced by the company.

John A. Luke, general manager of the paper company's Fine Papers Division, with headquarters in Luke, said the sale was prompted by the mill's need for space to carry out its current $50 million expansion program. No sales price was announced.

The chlorine plant at Luke will be shut down as rapidly as possible. All equipment and supplies used in the manufacture of the product are expected to be removed by Food Machinery within a year, Luke said.

Built shortly after the turn of the century, the chlorine facilities occupy space adjacent to the present pulp mill. This space will be used for expanded pulp mill facilities which will be required when the second of two new high-speed paper machines goes into operation in the 1960s. The first machine is scheduled to go into production next year.

Consolidated Expanding SWL Plant

The Appleton mill of Consolidated Water Power & Paper Co., will step up by 47 per cent its capacity for burning spent sulphite liquor. Plans for the million dollar project were announced by Henry P. Baldwin, vice-president, manufacturing. Construction schedules call for completing the installation in time for full-scale operation of the new plant by next winter.

A new steel and metal building will be erected to house two new boilers that will replace six smaller capacity units which have been in use for many years. One new boiler is designed to burn oil and 20,000 lbs. of 55 per cent concentrated spent sulphite liquor per hour while the other will burn oil and bark. Capacity of the present plant for burning sulphite liquor of this concentration is 13,600 lbs. per hour. Oil was selected as a basic fuel for the new boilers because of greater ease in controlling the mixed firing of oil and concentrated liquor and because of lower operating cost.

Consolidated Coater, Power & Paper is one of the pioneers in evaporating spent sulphite liquor and burning the concentrate.

C. A. King

Bird Elects New President

Bird Machine Co. has elected Calvin A. King president of the company to succeed F. K. Becker, retiring president. Mr. Becker will continue on the company's board of directors and in a consulting capacity. Mr. King has been associated with Bird Machine Co. for thirteen years, in sales engineering, research and product development, later as assistant to the president and more recently as first vice-president. He is a graduate chemical engineer, receiving his degree at Northeastern University.

Stonebridge Plant Acquired by Personal Products

Personal Products Corp., Milltown, N. J., has acquired the Stonebridge Paper Co., Wilmington, Ill. The purchase involves the transfer to Personal Products of over 200 acres of property in the Wilmington area, and tissue wadding mill with approximately 30,000 square feet of manufacturing space with a fourdrinier paper machine.

Headed by Arthur Leonard, the Stonebridge operation was set up in 1953 as a cellulose wadding producer. According to Robert D. Glidden, vice president of Personal Products and head of the firm's Cel-Fibe Division, it will continue to manufacture wadding for use by Personal Products and other affiliated Johnson & Johnson companies, and for external marketing.

The Stonebridge mill has now officially become a third producing unit of the Cel-Fibe Division, the others being located in Milltown and New Brunswick, N. J.

Johnson & Johnson May Purchase Spaulding

Johnson & Johnson Co. are reliably reported to be considering purchase of the Spaulding Pulp & Paper Co., Newburg, Ore. Spaulding operates a 150 ton per day unbleached sulphite pulp mill. Johnson & Johnson through its ownership of Personal Products Corp. has tissue and cellulose wadding mills in Milltown and New Brunswick, N. J. As announced above, this latter company has just acquired the Stonebridge Paper Co.

Newark Acquires Fandango

Newark Boxboard Co., Newark, N. J. announces the acquisition of Fandango Mills, Millburn, N. J., a producer of binders board for the book manufacturing trade.

A modernization and expansion program is underway which will result in an improved and dependable supply of quality binders board. The two companies will continue to be operated separately.

and paper industry. In the symposium, which will follow the business meeting, a number of speakers of national prominence will present papers on current atmospheric and liquid waste disposal problems in the pulp and paper industry. Featuring these papers will be a paper entitled "Local Public Relations in Pollution Abatement" by E. Stout, public relations officer, Bowaters Southern Paper Corp. In addition, other papers will include "Semi-Chemical Recovery Processes and Pollution Abatement" by Richard W. Brown, Donald T. Jackson, and John C. Tongren, Hammermill Paper Co.; "Some Biological Factors in Pulp and Paper Mill Pollution" by Dr. Willis M. Van Horn, chief of biology group, Institute of Paper Chemistry; "Disposal of Pulp and Paper Mill Wastes by Land Application and Irrigational Use" by Dr. Isaiah Gellman, west coast resident engineer, National Council for Stream Improvement; "Current Developments in the Dewatering of Paper Mill Sludges" by Dr. Harry W. Gehm, technical advisor, National Council for Stream Improvement; and "Pulp and Paper Industry Progress in Atmospheric Pollution Control" by Dr. Nicholas J. Lardieri, New England and Middle Atlantic resident engineer, National Council for Stream Improvement.

During the period Feb. 23 to 26, inclusive, important meetings of various regional sub-committees will be held.

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending January 31, 1959, was 87.7 per cent compared with 90.0 per cent revised for the preceding week. The ratio was 86.5 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending January 31, 1959, was 92 per cent compared with 91 per cent for the preceding week and 82 per cent for the corresponding week a year ago.

(Detailed statistics on page 36)

Specialty Paper & Board Men Meet

D. C. Knowlton

S. R. Sutphin

G. V. Johnson

The 25th annual meeting of Specialty Paper and Board Affiliates, Inc. was held at the Park Lane Hotel, New York, N. Y. on Jan. 21 and 22. Officers elected were: president, David C. Knowlton, Knowlton Brothers, Inc.; Vice-President, Samuel R. Sutphin, The Beveridge Paper Co.; secretary-treasurer, George V. Johnson. The following members were elected to fill vacancies on the executive committee: Wayne A. Brown, Crown Zellerbach Corp.; David C. Knowlton, Knowlton Brothers, Inc.; Russell C. Flom, Marathon, A Division of American Can Co.; William S. Kemp, Jr., Crocker, Burbank Papers Inc.; Burton C. Berg, The Mead Corporation; R. W. Mahony, The Appleton Coated Paper Co.; and Edwin H. Olmstead, The Eaton-Dikeman Co.

At group meetings the following chairmen were elected: Tag and File Folder Group—Clarke H. Morian, Jr., East Texas Pulp and Paper Co.; Sanitary Food Board Group—T. E. Button, St. Regis Paper Co; Bogus Bristol Group—J. P. Lewis, The J. P. Lewis Company; Coated Cardboard Group—Lawrence B. Kelley, International Paper Co.; and Mill Blank Group—Walter A. Lowe, Falulah Paper Co.

At the general meeting the president and secretary-treasurer gave their annual reports recapping developments in the Industry in 1958 and the outlook for 1959 with specific reference to the role of the association. W. Kenneth Brew, assistant executive secretary of APPA discussed problems facing the industry in public affairs, practical politics.

Following the Association's annual luncheon, George W. Brooks, director of the department of research and education of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, addressed those present on the subject of "The Attitude of Unions Towards Costs."

Swedish Exports Down 3% in 1958

Sweden's exports of paper and board amounted to some 950,000 tons in 1958, which is about 3 per cent less than in 1957. The decline was entirely accounted for by the first half of 1958, whereas export figures for the latter half of the year show some improvement over the same period of 1957.

Georgia-Pacific Joins NPA

Georgia-Pacific Paper Co. of Toledo, Ore. has become a member of National Paperboard Ass'n.

A wholly-owned subsidiary of Georgia-Pacific Corp. with general offices at Portland, Ore., Georgia-Pacific manufactures unbleached kraft paper for wrapping and bags; and kraft liner board for corrugated shipping containers.

Currency Paper Costs $2,500,000

It cost the Federal Government about $2,500,000 a year for the 4,000,000 pounds of paper that become, at face value, more than eight billion dollars' worth of currency notes. The cost of producing these notes is $9.37 per 1,000—just under one cent per note.

PAPER PEOPLE

Management Changes at Oxford

C. L. Ferguson

H. P. Petzold

Oxford Paper announces important management changes in connection with its new kraft construction program and the operation of its Rumford mill. Henry P. Petzold is promoted to the position of assistant to the vice president, Donald Appleton. In this new position he will be located in Rumford, Maine, and will coordinate the efforts of the various departments of the company involved in the design, construction and start-up of Oxford's new softwood kraft mill. Mr. Petzold, a graduate of McGill University, joined Oxford in 1937 after previous experience with International Paper Co. He has held the positions of plant engineer, assistant mill manager and mill manager of the Oxford Miami Division and since 1955 has been mill manager of the Rumford, Maine operation.

Charles L. Ferguson is promoted to the position of mill manager of the Rumford mill. Mr. Ferguson started work for the Oxford Paper Co. at an early age. In 1922 he became assistant superintendent of the soda mill, later he was promoted to superintendent of the soda mill, then assistant to the mill manager and in 1936, general superintendent. Since 1955 he has held the position of assistant mill manager at Rumford.

Harry B. Conner is promoted to the position of assistant mill manager, paper, at Rumford with responsibility for all paper manufacture, conversion, finishing, shipping and related activities. Mr. Conner is a pulp and paper technology graduate of the University of Maine. He joined the Oxford research staff in 1940; in 1945 he became superintendent of the electro-chemical plant; from 1948 to 1955 he served in various supervisory positions and in 1955 was made general superintendent.

Howard P. Waldenmyer is promoted to the position of assistant mill manager, pulp, at Rumford with responsibility for mill wood operations and pulp related activities. Mr. Waldenmyer is a chemical engineering graduate of the University of Michigan and joined the Oxford research staff in 1931. In 1936 he was promoted research group leader for pulping and in 1945 became operating superintendent of the sulphite mill; later he was promoted to assistant to general superintendent and in 1953 to technical assistant to mill manager.

Glatfelter Adds to Staff

George Treier, of Syracuse, N. Y., recently joined the research staff at the P. H. Glatfelter Co. mill. He is a graduate of the College of Forestry at Syracuse, having majored in pulp and paper technology.

Crown-Zellerbach Changes

The following personnel changes have been made at the Crown-Zellerbach Corp:

John M. Miller, assistant resident manager, Port Townsend mill—to assistant resident manager, Antioch mill.

Mr. Miller was manager of engineering and maintenance at Camas before he moved to Port Townsend in 1956. At Antioch he will be responsible for pulp handling, the paper machines, engineering and maintenance. Tom Leedham continues as an assistant resident manager at Antioch and will be responsible for all converting, storage and shipping.

Robert Plankinton, research chemist, central research, Camas—to technical control supervisor, St. Francisville mill.

William K. Mizell, Gaylord instrument mechanic, Bogalusa mill—to instrument technician, St. Francisville mill.

Charles L. Berry, Gaylord construction millwright, Bogalusa mill—to shop foreman, St. Francisville mill.

Albert Hopp, paper machine shift foreman, West Linn mill—to paper machine shift foreman, St. Francisville mill.

Bert Hopwood, paper machine spare hand and relief boss machine tender, West Linn mill—to paper machine shift foreman, St. Francisville mill.

Howard Smith Names Superintendent

G. D. I. Cameron has been appointed paper mill superintendent of the Beauharnois Division of Howard Smith Paper Mills Limited. Mr. Cameron is a graduate of the University of Toronto and has had considerable experience in the chemical and paper industries.

John R. McGrath has been appointed traffic manager for Howard Smith Paper Mills Ltd. and subsubsidiary companies. He joined the company in 1947 following 19 years service in the traffic department of the railways. Well-known in traffic circles, he is a member of the Traffic Club and chairman of the Rail Freight and Express Rates Committee of the Canadian Pulp and Paper Ass'n.

Smiley Promoted By International

David S. Smiley has been promoted to the position of beater superintendent at the International Paper Company plant at Niagara Falls, N. Y. He previously held the job of superintendent of coating.

Three Promotions at Glatfelter

Left to Right, Wilson Kern, F. J. Lovegren, O. V. Hyde.

P. H. Glatfelter Co. announced the advancement of three employes to help strengthen its Sales Service and Quality Control Departments effective Feb. 1, 1959.

Frank J. Lovegren assumed new duties as coordinator of sales service dealing with problems of sales, manufacturing and technical service.

Mr. Lovegren started with the company as an assistant supervisor in the new products department. Later, he assumed the duties of senior chemist and group leader in the technical department. Prior to his new appointment, he was supervisor of paper quality control.

Olin V. Hyde, formerly assistant to the paper quality control supervisor, will now serve as the supervisor of this department. He is a graduate of the College of Forestry in Syracuse, N. Y.

Wilson Kern, of Spring Grove, has moved to the industrial engineering department, where he will work on special assignments. He joined the company in 1945 starting his career in the wood yard department, and advanced through the ranks to night superintendent. Prior to his new assignment, Mr. Kern was superintendent of Glatfelter's new No. 7 paper machine.

Executives Named at Scott Div.

The promotions of Charles J. Dynes and Thomas G. Curtis to new executive sales positions have been announced by the Hollingsworth & Whitney Division of Scott Paper Co.

Mr. Dynes has been named assistant general sales manager of the Division. Mr. Curtis will succeed Mr. Dynes as H&W Eastern sales manager. In his new capacity, Mr. Dynes will continue to serve in the New York office until late spring when he will move to the Company's headquarters in Chester.

Mr. Dynes joined H&W in 1945 as director of sales planning, following nearly ten years of diversified experience in the industry. He became assistant vice president of H&W in 1952, and two years later was named eastern sales manager.

Mr. Curtis joined H&W in 1946 as a sales trainee. Following experience in the Division's mills, he was assigned to the Boston office as a cost estimator. From 1948 through 1950 he sold in the New England area. Following a military leave of absence he rejoined the sales group in New England in 1952. The next year he transferred to the Eastern Sales Division, selling in the southeastern states. He was named assistant eastern sales manager in 1957.

Westvaco Appointments

Alfred W. Arenander, Jr., purchasing agent for West Virginia Pulp and Paper Co. since 1942, has been promoted to manager of trade relations, a newly-created position.

In his new post Mr. Arenander will act in a liaison capacity with sales and purchasing in strengthening relations with customers and suppliers.

He will be succeeded as purchasing agent by William F. Merrilees, purchasing agent of the company's kraft division at Charleston, S. C.

Both appointments are effective March 1.

Mr. Arenander has been associated with purchasing since he joined the company 30 years ago.

Mr. Merrilees has been with the company's purchasing organization since 1936. He became assistant to the purchasing agent in 1942 and was transferred to the Charleston mill as purchasing agent in 1948.

Also announced is the appointment of Stephen R. Ellsworth as head of the Employee Relations Section of the company's New York personnel department. He will also serve as personnel manager.

Mr. Ellsworth, present personnel manager of the company's Hinde & Dauch Division in Sandusky, Ohio, is scheduled to be in New York City to take over his new duties on or before April 1. He will report to Thomas M. McCrary, manager of industrial relations and head of the personnel department.

Mr. Ellsworth will replace Donald H. Grubb, who has been promoted to the position of regional administration manager of the company's Hinde & Dauch Division, with headquarters in Hoboken, N. J.

Five Promoted at Gardner

The Gardner division, Diamond Gardner Corp., announced five promotions and one appointment.

Howard Ditmyer was promoted to superintendent of the paperboard mill; John Carmody to supervisor of plant accounting; William Nolan to wage and salary administrator; Kenneth Klein to marketing research analyst and Robert Bowie to industrial engineer.

David Pottenger was appointed district salesman, board sales, with headquarters in Memphis, Tennessee.

Latex Fiber Appointment

Alfred W. Anish has been appointed market development manager of Latex Fiber Industries, Beaver Falls, N. Y., according to an announcement by R. R. Menti, general manager of the company.

Mr. Anish is a graduate of Clark University and attended the Massachusetts Institute of Technology. Prior to joining Latex Fiber Industries he had been associated with the Remington Rand Division of Sperry Rand Corp., and the Ansco Division of General Aniline and Film Corp.

C-Z Appointments

Jack S. Davis, sales manager of Crown Zellerbach regional Printing Paper Division, Chicago, announced the appointments of: Thomas H. Mayer, as Eastern district sales representative with headquarters in New York City and Ted M. Steinmetz, as Midwest sales and service representative attached to the Division's Chicago office.

Mr. Mayer was formerly associated with Perkins-Goodwin. Mr. Steinmetz, who joined Crown Zellerbach in 1953, has been Northern California regional sales representative for the corporation's Western Printing Paper Division, with headquarters in San Francisco.

Gordon Retires From Container Corp.

Gail R. Gordon, widely known as a traffic specialist, retired Jan. 31 from Container Corporation of America after 33 years of service.

REDUCES MACHINE DOWNTIME

TAKES ONLY 30 SQ. FT. OF FLOOR AREA

REDUCES REJECTS

TESTED ON 600 MILES OF PAPER

FLOW TO SCREEN UP TO 165 TONS PER DAY

TESTED ON 700 STOCK CLASSIFICATIONS

INCREASING NUMBER OF NEW INSTALLATIONS REPORT COMPLETE SUCCESS

THE MOST ADVANCED PRESSURE SCREEN IS THE

BIRD CENTRISCREEN

BIRD MACHINE COMPANY · SOUTH WALPOLE, MASSACHUSETTS

REGIONAL OFFICES: EVANSTON, ILLINOIS • PORTLAND, OREGON • ATLANTA 9, GEORGIA

Canadian Manufacturers of Bird Machinery · CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

ALBANY FELT PERSONNEL ASSEMBLED AT MAIN PLANT. PICTURED HERE IS

WHAT'S BEHIND THE ALBANY SALES ENGINEER...

Backing up the Albany Sales Engineer who regularly calls at your mill is an outstanding team — available to serve your needs at any time. Each Sales Engineer can call into action all or part of this army of highly trained specialists to help solve your felt problems, and you can be sure everyone at Albany from the top down has the papermaker's interest at heart.

You receive the benefit of your Sales Engineer's practical experience PLUS the pooled know-how of a force of over 1500 — the people who have made Albany Felt Company today's leader in the field.

As experts in their own right and as liaison between the papermaker and the world's largest felt manufacturer, Albany Sales Engineers rightfully take a prominent place in "The Big Picture" — furthering the customers' objective of producing *more saleable tons per day.*

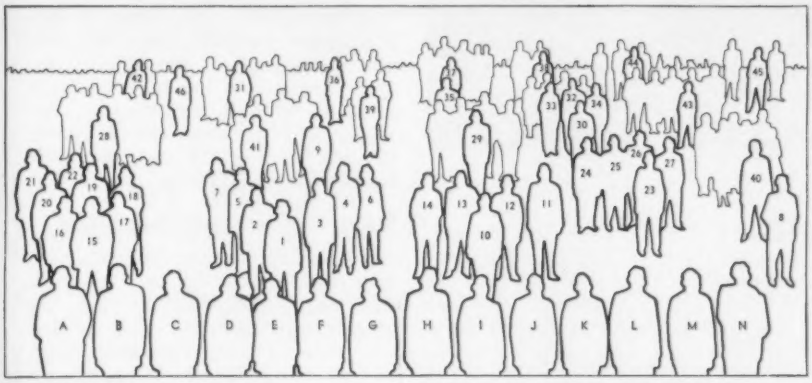
ALBANY FELT COMPANY

MAIN OFFICE & PLANT, ALBANY, N. Y.

OTHER PLANTS: HOOSICK FALLS, N. Y.; N. MONMOUTH, ME.; ST. STEPHEN, S. C.; COWANSVILLE, P. Q.

NEW IDEAS FOR BETTER PAPERMAKING—FROM

APPROXIMATELY 30% OF ALBANY'S WORKING FORCE OF OVER 1500 PEOPLE



SALES ENGINEERS
A — W. D. Willetts
B — F. J. McGrath
C — R. P. Dustrude
D — B R. Owre
E — L. A. Brown
F — C. R. Spellman
G — R. T. Dando
H — L. B. Lane
I — E. C. Paca
J — C. W. Page
K — R. Gordon
L — E. L. Lyon
M — R. D. Gregory
N — J. F. Howell

MANAGEMENT
1 J. C. Standish — President
2 Z. J. Chagnon — Vice-President, Sales
3 W. G. Davis — Vice-President, Felt Sales
4 E. C. Reed — Vice-President, Manufacturing
5 H. F. Hedberg — Vice-President, Research and Development
6 A. C. Cramer — Secty. and Asst. to President
7 C. H. Clifford — Treasurer
8 D. P. Bridge — Asst. Secty.
9 L. G. Briggs — Asst. Treasurer

SALES EXECUTIVES
10 J. E. Smith — Sales Mgr.
11 M. T. Reynolds — Asst. Sales Mgr.
12 C. E. Van Buren — District Sales Mgr.
13 J. E. Tanner — District Sales Mgr.
14 W. H. Schaffner — District Sales Mgr.

SERVICE ENGINEERS
15 L. M. Woodside — Chief Engineer, Tech. Field Service
16 N. J. Larson
17 W. S. Shires
18 L. H. Brown
19 G. G. Marsanskis
20 W. J. Shaughnessy
21 M. H. Rubeck
22 R. B. Wood

DESIGN
23 S. S. Engle — Chief Designer
24 W. P. Gettings
25 W. S. Wightman
26 D. F. McConaughy
27 E. D. Miller

LABORATORY
28 C. C. Gordon — Chief Chemist

RESEARCH & DEVELOPMENT
29 H. J. MacMillan — Director of Product Design

WOOL BUYING
30 G. A. Neville

MANUFACTURING
31 D. B. McLeod — Production Mgr.

CORRESPONDENTS & SECRETARIES
32 G. R. Woolfe
33 W. C. Larkin
34 J. P. Armstrong

PRODUCTION CONTROL DEPARTMENT
35 R. E. Parker — Production Planning Mgr.

BUSINESS OFFICE
36 H. J Van Buren — Order Department Supervisor
37 J. L. Lochner — Supervisor — Production Control Dept.

SHIPPING
38 J. E. Roberts — Shipping Room Foreman

PURCHASING
39 J. A. McCormack — Director of Purchases
40 R. H. Bissell — Credit Mgr.
41 H. H. Link — Chief Cost Accountant
42 G. F Baggett — Personnel Mgr.
43 W. F. Fry — Director of Industrial Relations
44 R. G. Ingraham — Chief Industrial Engineer
45 F. J. Zanetta — Quality Control Director
46 R. H. Sloan — St. Stephens Plant Mgr.

THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS

NEWS OF CONVERTERS

St. Regis and Monsanto Form Corporation

The St. Regis Paper Co. and Monsanto Chemical Co. have announced the formation of the Fome-Cor Corp., a jointly owned company which will manufacture and market Fome-Cor, a unique foamed plastic and paper "sandwich" material. The new company will assume full control immediately of operations resulting from the joint technological and commercial development program that has been under way since early in 1956.

Temporary headquarters for the new company will be located at Springfield, Mass., which is headquarters of Monsanto's Plastics Division.

Fome-Cor consists of foamed plastic and paper laminated by a continuous process into a new and versatile material which retains high compression strength under severe moisture conditions, provides good insulation and cushioning properties and is light in weight. It is capable of a broad range of uses for containers, displays, stage settings and many other applications.

Fome-Cor now is being manufactured in three forms or grades on a semi-commercial scale at the Superior Paper Products Co. plant of St. Regis Paper Co. at Mt. Wolf, Pa. The technology acquired as a result of this operation is being incorporated in the design and construction of a new and larger manufacturing unit at Addyston, Ohio, which will be operated by the Fome-Cor Corp. along with the Mt. Wolf installation. This new plant is expected to be in operation early in 1959.

President of Paper Bag Institute Re-Elected

Left, Sydney K. Bradley. Right, L. W. Gould.

Sydney K. Bradley was re-elected president of The Paper Bag Institute, Inc. at the annual meeting held on January 27, 1959 at Boca Raton, Fla. Mr. Bradley is vice president of Union Bag-Camp Paper Corp.

L. W. Gould, vice president of Gaylord Container Corp., Division of Crown Zellerbach Corp., was re-elected to the office of vice president of the Institute.

Elected as members of the executive committee were: Marx Eisenman, American Paper Co.; D. P. Stout, Continental Can Co., Inc., Southern Advance Bag Operation; G. A. Weisberger, Equitable Paper Bag Co.; A. W. Aron, Hudson Pulp & Paper Corp.; Fred John, International Paper Co.; Wm. R. Kohl, Sr., Lincoln Bag Co.; Tillman Cavert Jr., Southern Maid Paper Co.; E. A. Jacobs, Triangle Paper Bag Mfg. Co.; C. H. Kimball, Waltham Bag & Paper Co.; Wiley L. Jennings, West Virginia Pulp & Paper Co.

END-O-VENDOR DISPLAY RACK, specially developed for supermarkets, garden shops and other outlets for gardening equipment, a featured merchandising item for gardening supplies manufactured by the Agricultural and Chemical Division of Swift & Co., Chicago. The new stand was designed by the Specialty Division of Container Corporation of America, which also produces the colorful merchandising piece. The End-O-Vendor displays three top products of Swift's garden line. End-O-Weed, End-O-Pest, and Instant Vigoro. Swift is offering the new stand free to dealers with orders of ten or more cases of any of the three product lines displayed.

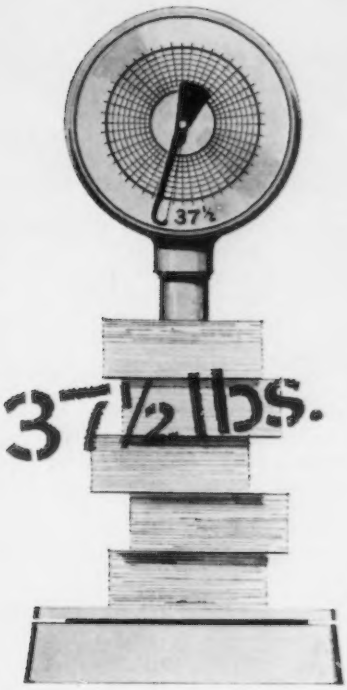
Guardian Container Adds Two Partners

Ralph H. Drapp, general manager of the Guardian Container Co., Sturtevant, Wis., and Daniel R. Angotti, plant manager, have been admitted as general partners of the firm. Mr. Angotti has been with the company since it was started. Mr. Drapp, of Milwaukee, joined Guardian in 1955 after 19 years with the Inland Container Corp.

New Carton For Sardines

To capitalize on the folding carton as a point-of-purchase merchandiser, the Machiasport Canning Co. has broken with tradition and, for the first time, is using individual outer cartons to market its Maine Queen brand sardines.

The new carton, designed and produced by Container Corporation of America, holds one key-type can of small sardines packed in oil or mustard.



100 magazines, 100 pages each, weigh only 37½ lb when printed on 40 lb stock.

OSTAL RATES GOING UP . . . YOU CAN HELP PUBLISHERS KEEP MAILING COSTS DOWN!

100 copies of same magazine, same number of pages, weigh 47 lb when printed on 50 lb stock.

Opacity and printability are vital considerations when it comes to papers for periodicals. With low basis weight papers made opaque with UNITANE O-110, magazine publishers should enjoy critical weight savings with little or no effect on readability.

Here's how UNITANE O-110 does this job better! Its uniform particle size, high refractive index, maximum water dispersion and other excellent working properties provide the level of opacity **which is preserved from dry sheet to printed page!** On the other hand, an ordinary clay-filled sheet may have good opacity when dry, but will lose its opacity when printed, thus increasing the show-through.

Your low basis weight papers can profit from UNITANE O-110 . . . and you'll profit, too, when your papers can meet today's more exacting publishing demands. Ask your Cyanamid Pigments representative for specific recommendations as they apply to your papers. He'll gladly supply samples, too.

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UNITANE

Soucie General Manager Of C-Z Div.

Gilbert V. Sans Soucie, Gaylord Container Division of Crown Zellerbach superintendent, Milwaukee box plant—to Gaylord manager, Chicago sheet plant.

Mr. Sans Soucie joined Gaylord in 1945 as an industrial engineer in St. Louis, became chief industrial engineer in 1952 and superintendent at Milwaukee in 1956.

Container Corp. New Mgr.

Container Corporation of America, announces the appointment of Joseph F. Kilcullen as manager of the company's Specialty Division to succeed F. Peter Sachs, who has retired after 18 years of service.

Mr. Filcullen is a graduate of Georgetown University, Washington, D. C. After six years of sales and sales promotion experience, he joined Container Corp.'s Specialty Division in 1952 and in 1955 was made division sales manager, holding this post until his new appointment. He will make his headquarters at the company's Ogden Avenue plant, Chicago.

Names Chief Engineer

Oscar A. Tinker has been appointed chief engineer of fiber drums at the Fibre Drum & Corrugated Box Division of Continental Can Co., it was announced by H. A. Scott, Division general mangager of research and development.

Mr. Tinker brings to his new position 12 years of extensive experience in fiber drum engineering. His headquarters will be at the Division master laboratory in Van Wert, Ohio.

New Manager

Central States Paper and Bag Co., St. Louis, has appointed Norman H. Lennon as printing and coarse paper division manager. Mr. Lennon was district sales representative for Crown Zellerbach Corp.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Jan. 3	Jan. 10	Jan. 17	Jan. 24	Jan. 31
1959	76.6	90.6	90.3	90.0r	87.7
	Jan. 4	Jan. 11	Jan. 18	Jan. 25	Feb. 1
1958	76.1	90.0	90.6	91.4	86.5

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	—	—	—	—	—	—	—	—	—	—	—	—	—
1958	86.9	89.5	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.6	90.4	83.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1559
Year to Date	—	—	—	—	—	—	—	—
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Dec. 31, 1958	Jan. 10	Jan. 17	Jan. 24	Jan. 31
1959	55	78	93	91	92
	Dec. 31, 1957	Jan. 11	Jan. 18	Jan. 25	Feb. 1
1958	45	88	90	87	82

COMPARATIVE MONTHLY SUMMARIES

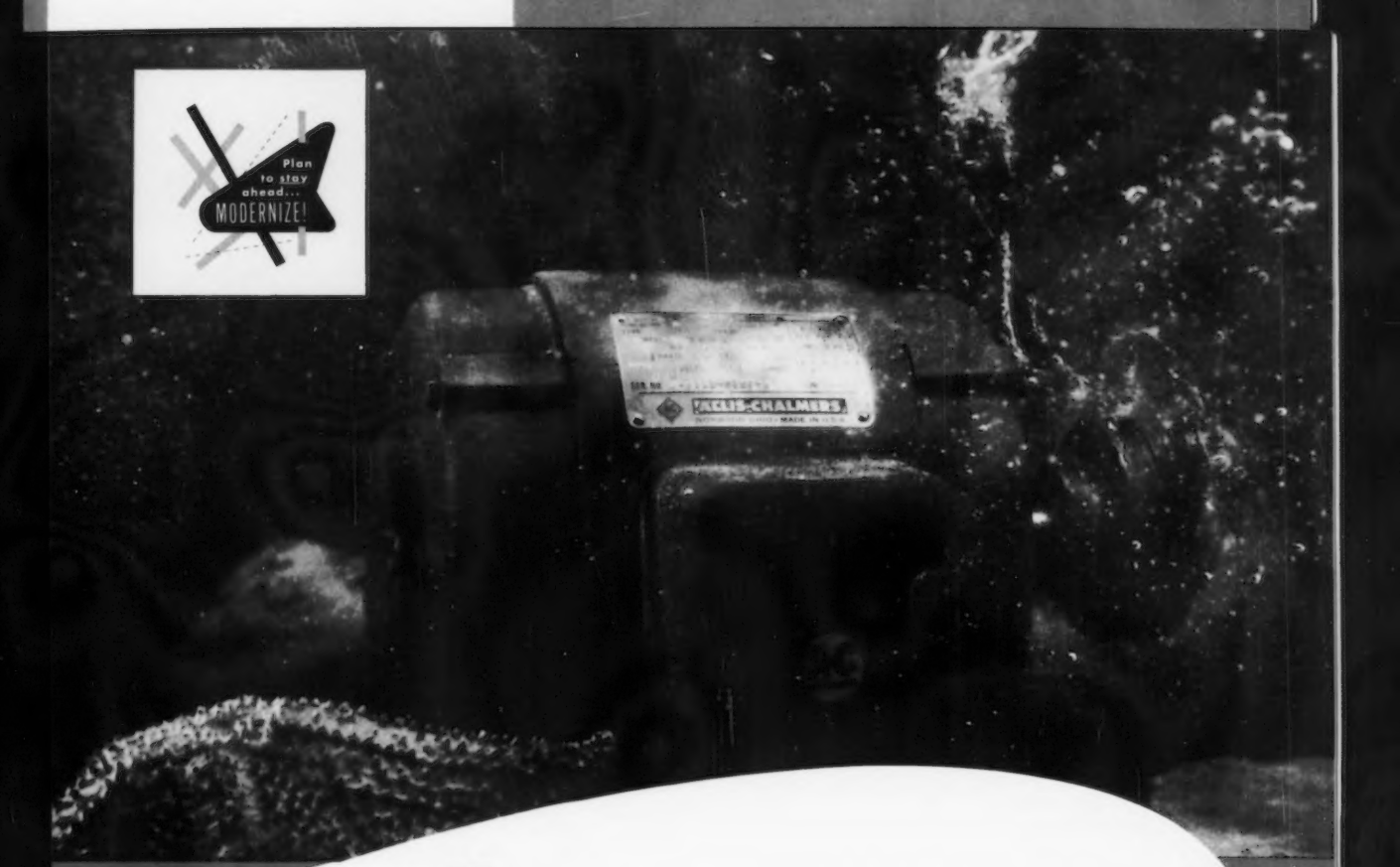
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	—	—	—	—	—	—	—	—	—	—	—	—	—
1958	80	86	88	84	84	86	76	92	90	95	92	81	86

† *Percents of operation based on "inch-hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Jan. 31, 1959	LAST WEEK ENDING Jan. 24, 1959	CUMULATIVE TO DATE Jan. 1 to Jan. 31 inc., 1959
% Activity	92%	91%	89%
TOTAL	293,826	292,534	1,197,591
Liner	93,302	102,380	412,582
Corrugating Material	41,879	40,819	175,159
Chip & Filler Board	6,391	4,859	20,765
Total Containerboard	141,572	148,058	608,506
Folding	57,240	59,944	220,987
Set-Up	11,037	12,196	46,169
Special Food Board	26,385	25,627	107,844
Other	57,592	46,709	214,085
Total Boxboard	152,254	144,476	589,085
TOTAL ORDERS			
Received	293,331	289,474	
Unfilled End of Week	375,635	378,182	

Two revolutionary insulating techniques



New motor development obsoletes today's application practices!

Only from Allis-Chalmers!

Super-Seal motors save up to 60%

Here's an amazing advance in motor technology! It's the *Super-Seal* motor line—an open motor design so completely unaffected by moisture, dust, dirt, oil, acids and alkalies that it can be used in many applications previously requiring more costly enclosed motors. *Savings range from 15 to 60%.*

Super-Seal motor superiority results from two distinct revolutionary insulating techniques. Available in any integral horsepower size, smaller *Super-Seal* motors incorporate a *Poxeal* stator. A durable epoxy resin encloses the stator, creating an electrical system impervious to outside elements.

In larger sizes, *Silco-Flex* insulation is used. In this system, silicone rubber is vulcanized into a homogeneous mass to form a flexible, moisture and heat resistant, void-free dielectric barrier around coils and leads.

Both of these insulation systems are unsurpassed. Proof? An encapsulated motor ran for hundreds of hours at full load in a 4% brine solution.

Find out more by reading the next pages; then contact your A-C representative or distributor, or write Allis-Chalmers at address shown on back page.

ALLIS-CHALMERS

CHRYSLER KIMBERLY-CLARK GOODYEAR 519 9100

Two revolutionary insulating techniques developed and pioneered by Allis-Chalmers mean savings of millions of dollars for motor users . . .

New open motors are unaffected by moisture and contaminants

Modern insulating materials and new methods of application, now available in *Super-Seal* open-type motors, are drastically changing motor application standards. These insulations are so completely impervious to moisture and contaminants that *Super-Seal* open motors can be used in most applications formerly requiring costly enclosed designs. Existing applications have resulted in savings as high as 60% .

Basic insulation systems

Larger *Super-Seal* motors with form-wound stator coils use the *Silco-Flex* insulation system. Heart of this system is a remarkable rubber-like silicone elastomer, applied in semi-cured state and vulcanized to form a void-free, impervious dielectric barrier. More than four years of development and field testing have proven the superior electrical and physical properties of *Silco-Flex* insulation systems.

Stator coils of smaller random-wound motors are protected by equally effective *Poxeal* insulation system. A tough, durable case of epoxy resin completely seals the winding end turns and slot portions. Bonded to the stator laminations, it forms a seal completely impervious to contaminants.

Moisture resistance

In addition to being void-free, the silicone elastomer used in *Silco-Flex* insulation is moisture repellent. Even in high humidity, moisture does not form a surface film of condensation. Coils with this protection can operate completely immersed in water. In fact, one of the recommended cleaning procedures is use of detergent and water.

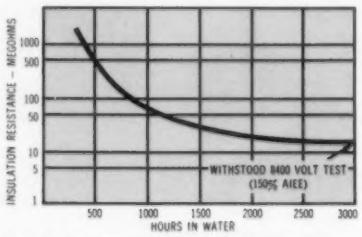


Fig. 1—Test curve shows insulation resistance of *Silco-Flex* insulation while immersed in water.

Moisture resistance of *Silco-Flex* coils is demonstrated in Fig. 1. After more than 3000 hours of total immersion with 2300 volts impressed on the coil, the test was terminated when it became apparent that little more drop could be expected in the coil's insulation resistance. At that point the coil still withstood a high potential test of 8400 volts without injury.

Encapsulated stator windings are equally well sealed. Motors with *Poxeal* insulation protection have been thoroughly tested under water while operating with full load and full voltage.

Resistance to contaminants

Silicone elastomers and epoxy resins are relatively inert to attack by practically all reactive agents. Further, the void-free construction of insulation systems used in *Super-Seal* motors prevents penetration of contaminants. As a result, *Super-Seal* motors are unaffected by oils, most acids, salt solutions, alkalies, and oils and are ideally suited for such applications.

Thermal stability

Temperature-wise, *Silco-Flex* insulation can easily withstand hot-spot temperatures of 200 C and more—

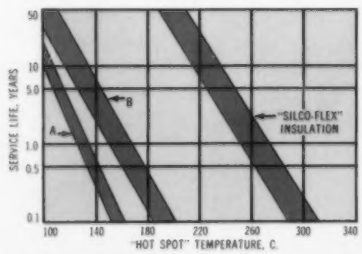


Fig. 2—Chart shows that *Silco-Flex* insulation more than meets Class H requirements.

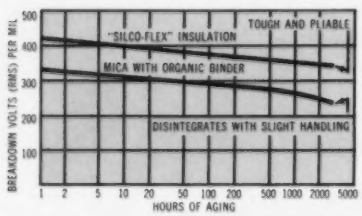
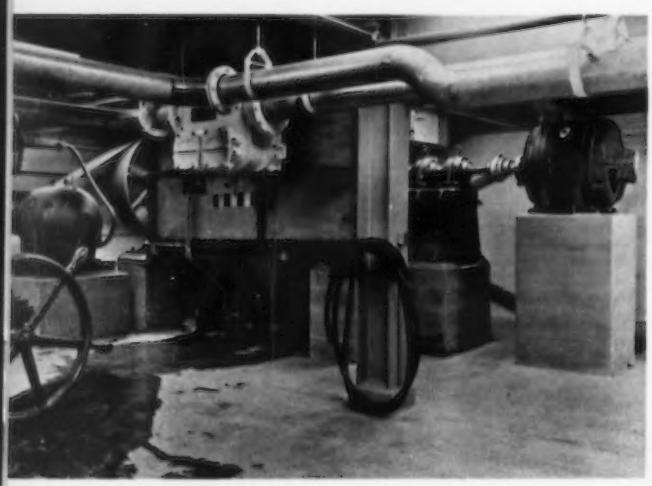


Fig. 3—Tests of 2300-volt insulated bars show thermal stability of *Silco-Flex* insulation.



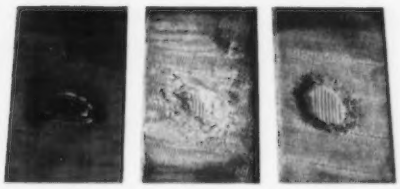
Paper mills have wide application for *Super-Seal* motors because of moist atmospheres.

easily meeting Class H temperature requirements (Fig. 2). At temperatures where the life of Class B coils would be measured in weeks, the life span of *Silco-Flex* coils is well beyond machine obsolescence.

Comparison with a mica-organic binder insulating system (Fig. 3) offers further proof of thermal stability. After 2000 hours of aging at 200 C with 8500 volts applied continuously, the *Silco-Flex* insulated coil was still tough, pliable, and completely serviceable. The mica-taped insulation had deteriorated to the point where it disintegrated readily and was completely useless.

An added advantage of *Silco-Flex* insulation is unusually high thermal conductivity — about twice that of conventional insulations. This means heat dissipates faster from its point of generation.

Poxeal insulation also demonstrates remarkably good thermal stability. Materials now in use are suitable for Class B temperatures, although actual classification of the insulation is determined by the basic material used.



Silco-Flex Insulation | **Polyester Mica Tape** | **Asphaltum Mica Tape**

Fig. 4—Samples of motor insulations after sandblasting give comparison of abrasion resistance.

Abrasion resistance

Resistance to abrasion is still another point of superiority in the insulation systems used for *Super-Seal* motors. Abrasion resistance of *Silco-Flex* insulation is compared to other types of insulation in Fig. 4. After one minute of sandblasting with 90-grit aluminum oxide and 100-psi air, only slight surface erosion appeared on the *Silco-Flex* sample. Other insulations were eroded to bare copper.

Application practices obsolete

The superior qualities of *Super-Seal* insulating systems, developed by Allis-Chalmers, make it necessary to reappraise present application practices. With virtually ageless insulation, *Super-Seal* motors assure more reliable service and require less upkeep than the best protected, conventionally insulated machines — and at considerably less cost.

Super-Seal, Poxeal, and Silco-Flex are Allis-Chalmers trademarks.

CHRYSLER KIMBERLY-CLARK GOODYEAR SOUTHERN CEMENT CONTINENTAL CAN SCOTT PAPER AMERICAN OIL CELOTEX FORD HURON PORTLAND CEMENT FIRESTONE PACIFIC GAS & ELECTRIC STANDARD OIL OF INDIANA B. F. GOODRICH DOW CHEMICAL MARLEY INGERSOLL-RAND LINK-BELT

WIDE ACCEPTANCE
of Super-Seal motors proves their advantages

Cement, petroleum, chemical, steel, mining, paper, utilities, municipalities and general industry — outstanding corporations in every field are specifying *Super-Seal* motors wherever operating conditions are tough.

Cost and *superior insulation* aren't the only reasons. Users are getting MORE MOTOR, too. Here's why:

Standard totally-enclosed motors, 55° C rise, have a *service factor of 1.* In other words, "nameplate" horsepower is the maximum. A 40° C rise *Super-Seal* motor with *Poxeal* insulation, and a 60° C rise *Super-Seal* motor with *Silco-Flex* insulation have a *service factor of 1.15.* For comparisons on what this difference means in required motor sizes, see this chart:

Rated Horsepower (Maximum Hp, TEFC)	Maximum Continuous Hp—Super-Seal Motor
15 hp	17.25 hp
25	28.75
40	46
75	86.25
125	143.75
200	230
350	402.5
500	575

Join the swing to *Super-Seal* motors. It will pay dividends fast. Contact your A-C representative or distributor, or write Allis-Chalmers at address shown on back page.

ALLIS-CHALMERS

SOUTHERN CALIFORNIA EDISON LONG ISLAND LIGHTING AVCO UNION BAG UNIVERSAL ATLAS UNION CARBIDE OHIO OIL INTERNATIONAL PAPER SOUTHERN PACIFIC PIPE LINE ALCOA ROHM & HAAS ARMOUR SHELL OIL COMMONWEALTH EDISON OWENS-ILLINOIS WYANDOTTE CHEMICAL BETHLEHEM STEEL ALLEGHENY-LUDLUM MEAD DU PONT DETROIT EDISON ESSO HERCULES POWDER SINCLAIR PIPE LINE GENERAL TIRE MONSANTO

This *SUPER-SEAL* MOTOR application SAVED $3000!

Find out how much you can save

This application of a *Super-Seal* open-type motor — in place of a weather-protected design of the same rating — *saved the user $3000.00!*

You can achieve similar savings! Fill out the data sheet below and *find out for yourself how much you can save — on a "no-strings-attached" basis.*

Here's what to do: 1) Select an enclosed motor application in your operations (a new motor need or, for comparison, a motor just purchased); 2) fill out the data sheet; 3) mail to the address shown.

We'll give you a cost quotation on a *Super-Seal* open motor for that application.

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888 S. 70th St., Milwaukee 1, Wis.

Motor Data

1. Type (i.e., squirrel cage):

Horizontal ☐ Vertical ☐

Hp..... Rpm.....

2. Phase..... Frequency.....

Voltage.....

3. (For synchronous only)

Power factor.....

Starting torque.....

Pull-in torque.....

Pull-out torque.....

Application Data

4. Description of application:

5. Drive: Direct-connected ☐
V-Belt ☐ Other:.....

Starting load.....

Ambient temperature.....

6. Operating conditions:.....

Dirty ☐ Clean ☐ Wet ☐ Dry ☐

Other.....

Information on Existing Motors
(for comparison)

7. Type of insulation

Type of enclosure

Time rating.....

Temperature rise.....

Bearings:
Anti-friction ☐ Sleeve ☐

8. Special characteristics or construction:

NAME.....

TITLE.....

COMPANY.....

ADDRESS.....

A-5869

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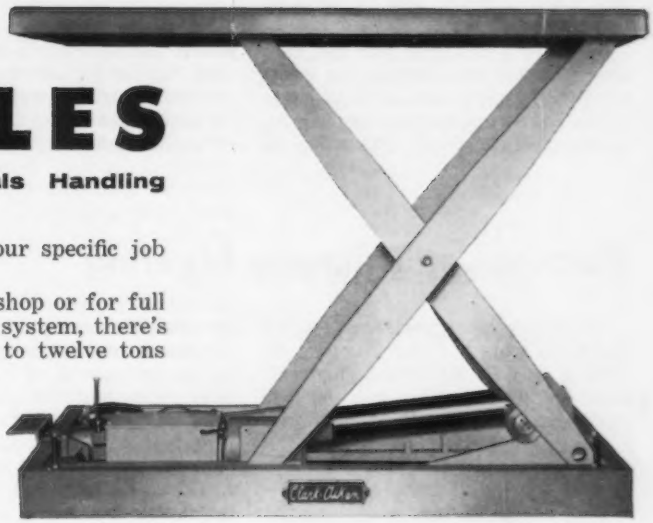
Clark-Aiken's NEW LINE of LIFT TABLES



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For completely portable use anywhere in the shop or for full integration into a modern materials handling system, there's a Clark-Aiken unit that will raise from one to twelve tons to heights of four feet in seconds!

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Table top is fabricated from heavy steel plate of one piece construction to stand up under the most rugged shop conditions. A special cradle top is available for handling cylindrical materials.

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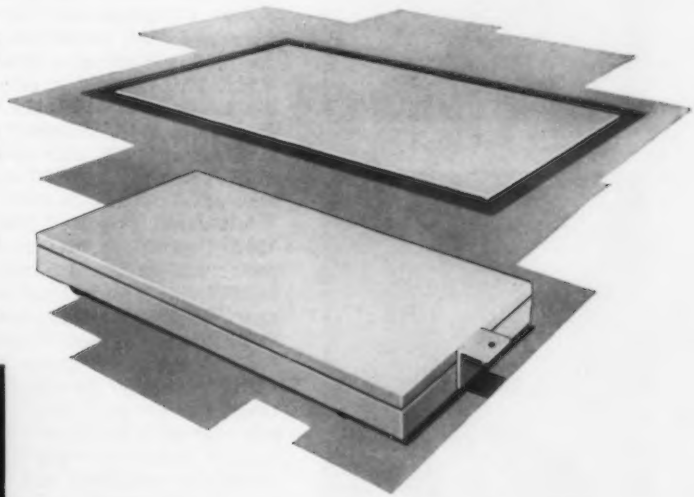
Portable units are wheel mounted for full mobility and easy positioning.

SAFER

A special disappearing toe guard affords greater worker safety.

COMPACT

Clark-Aiken Lift Tables collapse to a height of seven inches for greater mobility, easier handling and quick skid insertion.



For further information on how Clark-Aiken Lift Tables can help you speed materials handling write today.

THE Clark-Aiken COMPANY

956 SPRINGFIELD ROAD

LEE, MASSACHUSETTS

Barnes Retires From Michigan Carton

Edward H. Barnes, former general superintendent, has retired from active service after more than 48 years with the Michigan Carton Co. of Battle Creek, Mich. Announcement of his retirement was made at a luncheon in his honor attended by 50 company executives.

Mr. Barnes joined the company in 1910, at the age of 17, as a pressroom "devil." Two years later he became time keeper and clerk in the mill office. At the outbreak of World War I, he was named night superintendent of the company's board mill. After the war, he became assistant mill superintendent and in 1933 he was appointed head superintendent.

E. H. Barnes

In 1948, a new mill was put into operation and Mr. Barnes was elected to the board of directors and made general superintendent of both mills, a post he held until 1953 when ill health forced him to resign. Since then, he has served the company as a manufacturing consultant, a director and a member of the quality control committee.

President of Rex Paper

John E. Lean, formerly executive vice president of the Rex Paper Co., Kalamazoo, Mich., was named president and general manager at a meeting of stockholders. The post previously had been held by Mrs. Merrill B. King since 1932.

Other officers are: Paul Butler, Oak Brook, Ill., chairman of the board; J. M. Bireley Sr., Chicago, treasurer; J. G. Ruimveld, Kalamazoo, secretary; and H. W. Reiher, Chicago, assistant secretary.

H. G. Nendorf will continue as general superintendent of the mill and J. G. Ruimveld as purchasing agent.

The Rex Paper Co. was purchased last March by a Chicago syndicate headed by Paul Butler of the Butler Co. The mill was founded in 1915 by John F. King.

Mr. Lean came to Kalamazoo in 1953 to become vice president and general manager of Rex.

Elections at Thilmany Meeting

At the annual meeting of the Thilmany Pulp & Paper Company on Feb. 5, Guy E. McCorison, formerly vice president-sales, was elected president to succeed E. H. Jennings.

G. E. McCorison

E. H. Jennings

Mr. Jennings was named chairman of the board to fill the vacancy caused by the retirement of Karl E. Stansbury, who continues a director. C. R. Seaborne, formerly executive vice president, also retired, but will continue a director and consultant. C. L. Dostal continues as vice president in charge of manufacture. H. O. Peters, a vice president and formerly sales division manager in Chicago, succeeds Mr. McCorison as vice president-sales. J. T. Thomas, formerly a sales division manager in Detroit, was made vice president in charge of marketing. All directors were reelected, the retiring officers continuing to serve as directors.

Mr. Stansbury was employed by the company in 1906. He became a director in 1913, secretary and sales manager in 1916, vice president in 1919, president in 1936 and chairman of the board in 1950.

Mr. Jennings joined Thilmany in 1916. In 1928 he was elected a director and assistant secretary, and in 1936 vice president and sales manager. In 1950 he was named president to succeed Mr. Stansbury.

Mr. Seaborne became associated with Thilmany in 1918. Shortly thereafter he was elevated to chief engineer with broad responsibilities. In 1940 he was chosen a director and made vice president and treasurer, and in 1950 executive vice president.

Mr. McCorison came to Thilmany in 1936. He was elected to directorship in 1941, and in 1947 vice president and assistant sales manager. In 1950 he was placed in charge of sales.

H. O. Peters

J. T. Thomas

Dimensional Stability of Paper

Summaries of three papers presented at a conference at the U.S. Forest Products Laboratory, Madison, Wis., on dimensional stability of wood and paper.

Cyanoethylation as Means of Improving Dimensional Stability

John L. Morton
I.B.M. Corp.
and
Norbert M. Bikales
American Cyanamid Co.

A joint investigation between I.B.M. and Cyanamid was made of the properties of cyanoethylated paper, particularly with respect to dimensional stability. It was found that a substantial improvement in dimensional stability results when cyanoethylation is carried out on the pulp, rather than on preformed sheets. The improvement is proportional to the degree of cyanoethylation when substitution is carried out in the range where morphology of the pulp is unaffected. The expansivity in blends of untreated pulp with cyanoethylated pulp is in direct proportion to the ratio of pulps in the blend. The improvement in dimensional stability is the result solely of etherification with acrylonitrile, as indicated by the fact that a control treated with alkali only showed no decrease in expansivity.

A promising new process cyanoethylation was described, involving the use of minimal quantities of both sodium hydroxide solution and acrylonitrile.

Stabilization by Heat and Formaldehyde Cross-Linking

Alfred J. Stamm
U. S. Forest Products Lab.

Paper, like wood, is dimensionally stabilized by heat and by catalyzed cross-linking with formaldehyde. The situation is, however, considerably better from the standpoint of loss of strength properties.

Higher degrees of heat stabilization can be obtained with paper than with wood. In paper treated with 1.25 per cent of zinc chloride catalyst, 40 per cent dimensional stabilization can be attained by heating it for one minute at 190°C., 1 hour at 140°C., or 1 day at 100°C. As with wood, the square of the fractional reduction in swelling is proportional to the weight loss, but the weight lost in attaining 40 per cent dimensional stabilization is only 1.0 per cent in contrast to 12 per cent for wood.

Heat stabilization has no really serious effect upon the strength properties of dry paper less than 40 per cent stabilized. Tensile and ring compression strength of wet paper increase rapidly with increased dimensional stabilization; when a dimensional stabilization of 40 per cent is exceeded, however, tensile strength decreases while ring compression strength continues to increase. Strength values for heat stabilized paper when wet are about equal to those attained with 6 per cent of phenolic resin.

Dimensional stabilization is more rapidly attained by catalyzed cross-linking with formaldehyde than by heat stabilization. Paper containing 1.25 per cent of zinc chloride catalyst attains a 60 per cent dimensional stabilization when heated at 120°C. for 1.5 hours over paraformaldehyde. Under these conditions, only 0.5 per cent of formaldehyde is bound.

Formaldehyde cross-linking has a less detrimental effect upon the strength properties of paper than does heat stabilization. Losses in tensile strength do not occur until a dimensional stabilization of 60 per cent is attained. Strength values of the wet paper are somewhat higher, equal to those attained with 8 to 10 per cent of phenolic resin, when treated by formaldehyde cross-linking than when treated by heat stabilization.

Heat stabilization of paper shows commercial promise only in cases where some embrittlement can be tolerated. Formaldehyde cross-linking is more generally promising for commercial use, as significant losses in strength properties do not occur except when the stabilization exceeds 60 per cent.

Stabilization by Mechanical Means

Gerald L. McLeod
National Bureau of Standards

A study of methods for developing paper with good dimensional stability to moisture was made at the National Bureau of Standards in connection with the need for a more stable military map paper. Two of the physical methods investigated were the lamination of thin map paper to a more dimensionally stable film and the use of synthetic fiber-cellulose fiber blends. Reductions in expansivity up to 30 per cent in the machine direction and 70 per cent in the cross direction were obtained by lamination. Strength properties, in general, were improved. Polyester, polyacrylic and polyamide fibers used in admixture with cellulose fibers resulted in generally improved strength properties (especially wet strength) as compared to pure cellulosic paper. The polyester-cellulose paper had the best moisture stability, the polyacrylic-cellulose paper was not quite as good while the polyamide-cellulose had less moisture stability than cellulosic map paper.

The use of glass fiber blends with cellulose and the alteration of strains in machine-made paper to reduce expansivity were briefly mentioned.

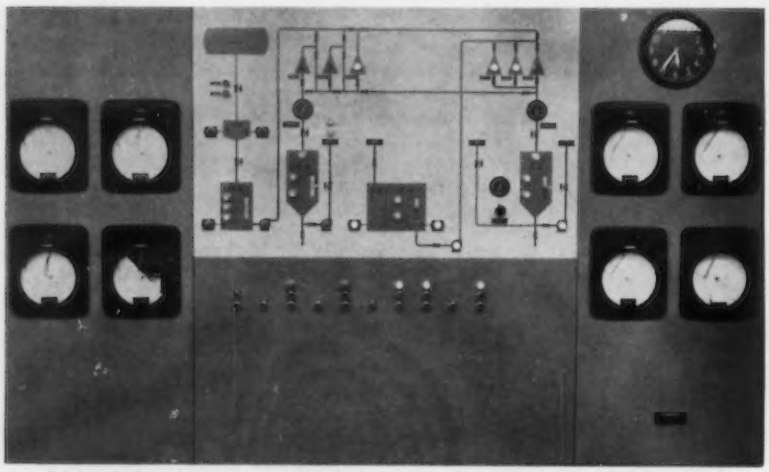
How S. D. Warren Gets Efficient Utilization of Soda Hardwood Pulp

Robert W. Hisey

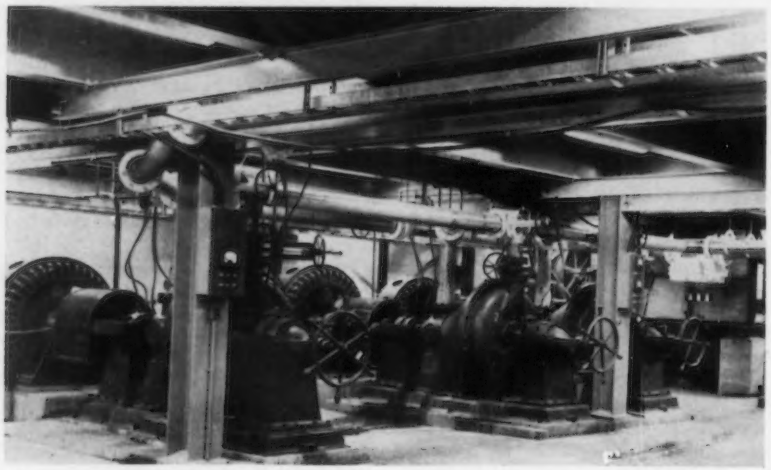
Technical Service Director
S. D. Warren Co.
Cumberland Mills, Maine

The Cumberland Mills pulping operation of the S. D. Warren Co. is based upon the soda process. We make some long fiber soda pulp but mainly hardwood soda pulp. This latter pulp is the mainstay of the mill, and is supplemented by the small amount of long fiber made there and a considerable quantity of purchased bleached kraft long fiber. This purchased fiber is a large factor in the cost of our paper, and so every effort must be made to keep this usage down and to use the maximum amount of our most economical raw material, hardwood soda pulp.

Paper presented at the 1958 annual meeting of the Superintendents' Assn. held in Boston, Mass.



Panel board shows operator what happens in new treatment system at all times.



Three of the new Claflin refiners for hardwood pulp.

In order to do this, it is essential to develop all the strength inherent in the soda hardwood, and not to use it merely as a filler for the provision of properties other than strength in the sheet, as many mills have done in the past.

Laboratory and mill experience over the years has indicated rather conclusively that our normal refining method, beating the soda hardwood together with the purchased kraft in Hollander beaters, is not the best possible treatment. It was from this starting point that an investigation was launched by the research laboratory and mill to determine the best possible means of prerefining our hardwood pulp.

This is a brief resume of that investigation. It should be borne in mind that the object was to find empirically a good refiner for this particular stock, and not to advance refiner design. Only some typical data is reported of the reams collected, and of course extensive additional background data was available.

Hollander Beater

The first step in our study was to determine whether our beaters could do a good beating job on our hardwood at a reasonable power consumption. For this, our hardwood pulp with about 15 per cent added soda long fiber was beaten in our beaters at 4.25 and 6 per cent A. D. consistency and a similar sample was beaten in a ball mill. The beater used was a 1500 lb., 100 horsepower beater with 5/16 inch mild steel bars. Typical results are shown in Figure 1 for a 6 per cent consistency pulp beaten hard in this beater for 2½ hours compared with ball mill beating.

It will be noted that even this rather severe beating has not developed much shrinkage, and has developed little, if any, strength in the pulp.

In Table I are summarized the results of the trials in the beater for one hour at 4.25 per cent and 2½ hours at 6 per cent consistency. The results are expressed in terms of equivalent

minutes of ball mill beating on the particular pulp used, so as to eliminate the effect of pulp variables from the discussion. In the group at 4.25 per cent consistency, runs with light, medium and heavy roll settings are lumped together, and this, surprisingly enough, made almost no difference in the results. At this consistency, one hour of beating apparently accomplished nothing except for slowing up the stock somewhat.

Our conclusion was that the Hollander beater is an extremely inefficient engine for developing the inherent strength of our soda hardwood pulp.

Continuous Refining

Having decided that conventional bar beaters were not suited to our hardwood soda, the alternatives left were special type beaters with, say, lava tackle, or continuous refining engines. As a matter of policy it was decided not to investigate special beaters further, as they are not suited to continuous operation. We went to an intensive investigation of various continuous refining engines. Those investigated were:

1—A conventional jordan with 3/16-inch stainless steel bars.

2—A jordan with special Bidwell cast iron filling.

3—A Claflin refiner with special Bidwell cast iron filling.

4—A special foreign refiner.

5—
6— } Two types of disk refiners.

It should be noted that only number **1**, a conventional jordan, would be classed as a "bar-to-bar" type refiner. This jordan was included mainly as a check on our thinking about bar-to-bar type equipment not being best suited to our hardwood soda pulp.

We wanted to answer two questions:

1—Which refiner would develop best properties in our pulp?

2—Of those refiners developing best properties, which would use the least power?

Table I

	HOLLANDER BEATER		CONVENTIONAL JORDAN
Consistency (% A.D.)	4.25%	6%	4.25%
Burst	2 Min.	8 Min.	18 Min.
Fold	2 Min.	2 Min.	14 Min.
Slowness	9 Min.	40 Min.	35 Min.
Shrinkage	3 Min.	40 Min.	23 Min.
H.P.D/T	1-3	8.4	7-9

Conventional Jordan

Typical results obtained from a conventional jordan using 125 h. p. with 3/16-inch stainless steel bars at 4.25 per cent A. D. consistency are shown in column 3 of Table I. This machine does a much better job of getting hold of our fiber than the beater and has developed a certain amount of strength. However, the slowness has been developed most of all, the equivalent of twice as much as the strength. This confirmed our low opinion of bar-to-bar type beating on this pulp.

Other Refiners

We then began a study of some non bar-to-bar type equipment. The refiners listed as 2, 3 and 4 were installed in the mill in such a manner as to allow us to use any one to pre-refine soda for one paper machine, to obtain data at varying flow rates and plug settings, to measure accurately flow rate and power, and to sample easily without interfering with machine operation.

Numerous runs were made on each refiner until we were satisfied that a true picture had been obtained of the pulp quality and power efficiency.

In addition, large samples of lapped pulp were sent out to two manufacturers of disk refiners for evaluation in their laboratory. To ensure comparability of results, however, sheet making and testing were done at Cumberland Mills on the slush pulp samples.

The results of the trials were evaluated as we proceeded. Some conclusions were very clear-cut, while others were more indistinct. The first conclusion was readily apparent. The foreign designed refiner was found to be totally unsuited for our pulp, as it could not maintain a fiber film between the beating surfaces. As a consequence, the machine grabbed and it was found impossible to apply much useful power to the pulp. Thus one machine was eliminated.

The results of the other runs are shown in Figures 2-6. These figures were originally drawn with all the points plotted, but these have since been erased as there were some 200 points, closely massed, making these figures rather unintelligible in reproduction. There was, however, little uncertainty about the position of the lines.

It will be noted that the only characteristics plotted are burst, fold, shrinkage, and power. Tear, slowness, and densometer were also taken in most cases, but added nothing to the picture presented by the characteristics plotted.

Conclusions on Tests

Looking first at the pulp quality as shown in Figures 2 and 3, the conclusions we drew were:

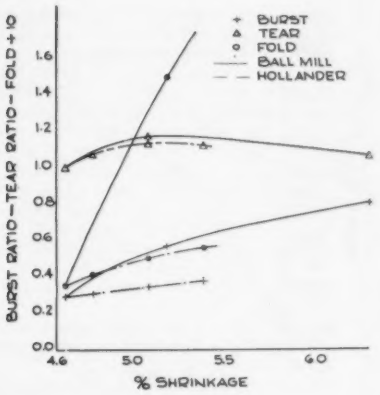


FIGURE 1

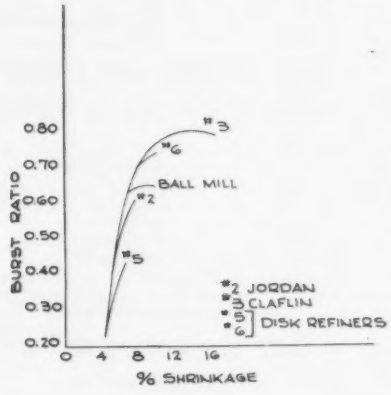


FIGURE 2

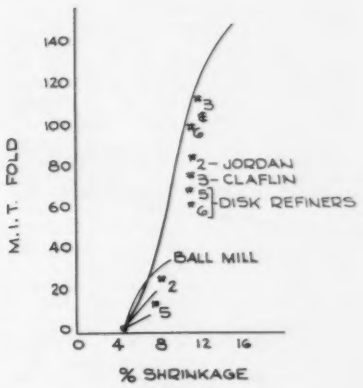


FIGURE 3

1—The ball milled pulp was definitely surpassed in quality by the Claflin and one disk refiner; the specially lined jordan and the other disk refiner were very close. In other words, all of these refiners produce pulps far superior to those produced by conventional bar-to-bar beaters or jordans.

2—Of the various refiners, the Claflin and one of the disk refiners appeared to produce the most desirable pulp. The difference was not very great at the lower levels of refining, but appeared at the higher levels. Although these higher levels of shrinkage are not encountered in production grades, or envisioned for pre-refining, it was felt that a refiner which showed up well at high levels of refining would also be desirable at lower levels.

Next, looking at the power efficiency as shown in Figures 4, 5, and 6, one conclusion was inescapable. The Claflin with a Bidwell cast iron lining, was well below any of the other refiners tested in terms of horsepower needed for a given level of strength development.

Although we had not tested all possible refiners, tackles, and conditions, we felt that the time had come to settle upon one refiner. We chose the Claflin. We had no reason to believe that any other refiner could do much more than match it, so we moved into the next phase of the investigation.

Mill Trials

Laboratory testing and sampling is all very well, and is a good index of the comparative merits of various refining engines. However, in the last analysis, what counts is whether paper can be made better, or cheaper, or both by the use of soda pulp pre-refined in the Claflin. In other words, we knew the Claflin was better than our beater, but was the difference enough to be worth the cost? To settle this question we decided to put the Claflin into 24 hours, seven - day - a - week operation (on this machine) for a period of some months, and to follow the routine test results. The grade we elected to follow was a relatively hard beaten offset sheet. 50 pound (25x38-500), which used about 30 per cent soda hardwood pulp in the furnish.

Table II

	1. NO PRE-REFINING	2. PRE-REFINED	3. PRE-REFINED
Basis Wgt. 25 x 35-500	50.3	50.7	51.1
Ash	13.8	13.0	13.9
Tear—With	47.5	52.5	49.1
Across	55.0	61.5	55.9
Tear—Average	51.2	57.0	52.5
Burst	26.5	28.0	31.9
$\sqrt{(Burst)(Tear)}/13.57$	1.00	1.08	1.11
(B+T)/77.7	1.00	1.09	1.09

The test averages are shown in Table II for three periods of three months each. Each period covers a few million pounds of paper, with an individual test about every 5,000 pounds. It may be seen that although the ratio of tear to burst is different in the three periods, for various reasons, the total strength of the sheet has been increased some 10 per cent by the use of pre-refining on the soda hardwood. This we consider a very important increase, as it allows us to either market an improved sheet, or to reduce our purchased long fiber consumption markedly by increasing the use of our own soda hardwood pulp. As there is considerable spread in the cost of these items, this is a very important method in reducing our costs.

Conclusions

Our final conclusion in this investigation was that our particular soda hardwood pulp could be developed in a much more beneficial and economical manner by pre-refining in a Claflin refiner with a Bidwell lining than in conventional bar-to-bar equipment such as a beater or jordan or in the other types of refining equipment tried. It was shown that with proper pre-refining of the hardwood pulp substantial improvements in paper strength could be made, which result in either decreased costs by lowering the fraction of long fiber required in the paper or improved paper quality.

These particular conclusions quite properly apply only to Cumberland Mills, and should not be interpreted as of general validity. However, one general conclusion may be drawn. In mills where there is one economical pulp, which may well be considered more or less a filler, it should be carefully examined to determine whether better refining methods might not develop a quite surprising amount of strength, thus permitting substantial savings.

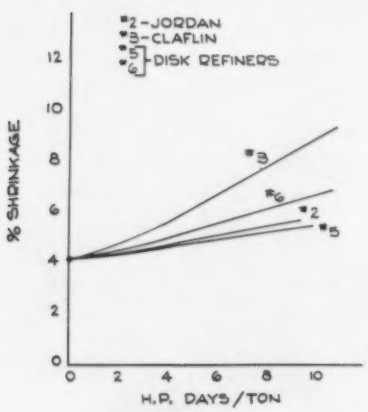


FIGURE 4

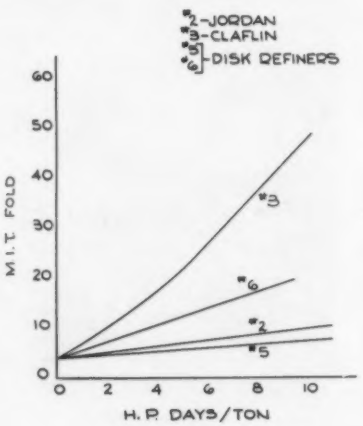


FIGURE 5

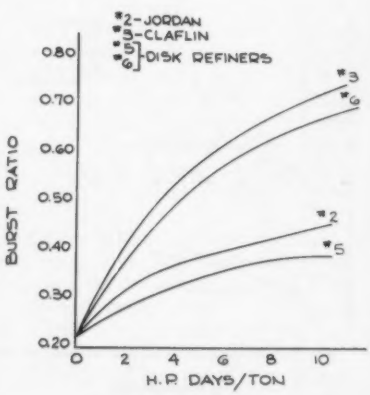


FIGURE 6

U.S.I. POLYETHYLENE NEWS

A series for plastics and packaging executives by the makers of PETROTHENE® polyethylene resins

Packaging Notes

New rim seal packaging machine that effects considerable savings in time and packaging film is being placed on the market. The hand-operated machine was designed for use in small food packaging operations, such as are common in super markets. The machine seals polyethylene film to the rim or lip of the food tray or container in a single operation. By eliminating the extra film that normally is folded and sealed under the tray, the machine reportedly saves almost 60% of the amount of film needed to make a sealed package. It is claimed that the machine can produce three to four times as many packages in a day as can be made by present hand wrapping methods.

The machine employs an electrically heated and thermostatically controlled upper section which is brought down on the film to make the rim seal. The heat sealing surfaces can be changed quickly for almost any size or shape of container. A set of sealing shoes for conventional package sizes and shapes is included with the machine.

Pressure-sensitive, paper-backed polyethylene tape solves problems of joining and patching poly film used in agriculture and as a water vapor and dust barrier in the construction field. The tape is easily applied by removing the paper backing and firmly pressing the tape smooth. The tape meets general building requirements, including FHA specifications.

Grain and silage can be packaged and preserved in poly bags, according to a study made at a leading Midwest agricultural school. Previous attempts to accomplish this with conventional bags failed because the bags permitted air to enter the package, spoiling the high moisture silage. Polyethylene reportedly lets gas escape, but prevents air from entering.

A new process permits polyethylene coated bags and cartons to be run on standard glue-sealing machinery at high speeds, using low-cost dextrin and starch adhesives. The process is expected to increase sharply the use of polyethylene-coated materials for packaging.

Possible applications include boxes for chlorinated powdered detergents, cereals, cake mixes and other products requiring sift-proof containers. Need for a loose inner liner would be eliminated. Polyethylene-coated cartonboard for frozen food packages would also cut costs by eliminating the need for overwraps.

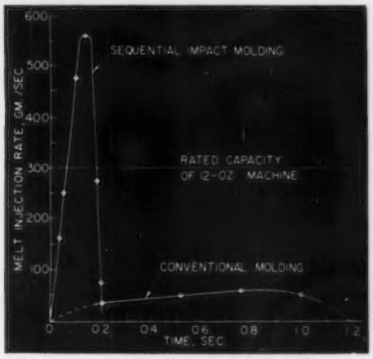
First commercial use for the process is in packaging personal hygiene products in a box made of polyethylene-coated paperboard. The coating replaces a glassine-paper laminate.

Sequential Impact Molding: New Technique Increases Output, Simplifies Fill Control

Method Based on Precisely Timed Release of Precompressed Melt

A radical improvement in the still new technique of impact molding was announced recently. Called Sequential Impact Molding (SIM), the new method reportedly yields from 30 to 50% more pounds of finished pieces per hour than the best yields for the same equipment employing conventional procedures. Mold filling rate is said to be increased six-fold.

In ordinary impact molding, the melt is precompressed, then "exploded" into all the mold cavities at one time. With SIM, the cavities are filled in carefully timed sequence, with each cavity receiving the full pressure of the injection setup. Sequencing is achieved by timed opening and closing of the valves in a multiple-nozzle manifold. The advantage of this method over sequenced valve gating is that all the special equipment is in the injection end of the machine rather than in the mold. One valving setup may be used for many different molds.



Filling rate graphs for two half-gallon containers molded under identical conditions by sequential impact molding and by conventional means.

Faster Filling Speed

In addition to increased output, one of the biggest advantages of SIM is reported to be the speed with which the cavities are filled. With SIM, cavity filling is so fast that mold temperature is no longer critical and amount of flow into the mold is more easily controlled. This speed also eliminates core shifting and weld lines by reducing the usual large, around-the-cavity pressure gradients that are responsible for core shifting in bottom gated cavities. SIM is also said to eliminate warping of thin sections caused by locked-in stresses.

Sequential opening of the valves also reduces clamp requirements, since only one cavity or group of cavities is filled at any one time. Thus, clamping force needed is much less than if all the cavities were filling together. This permits an increase in the number of cavities without undue concern for clamping capacity.

Equipment for SIM is being made and sold under license from the company which developed the technique. Both new molding machines and conversion kits for adapting existing equipment are being offered.

Booklet Describes Chemical Growth of National Distillers

A full color brochure describes the growing contribution to the chemical industry of National Distillers and Chemical Corporation. The 36-page booklet takes readers on a photo tour of plants operated by U.S.I. and its affiliated companies. Products of these operations — polyethylene, petrochemicals, agricultural and industrial chemicals, corrosion-resistant metals and high energy fuels — are described.

The brochure may be obtained by writing Editor, U.S.I. Polyethylene News, U.S. Industrial Chemicals Co., 99 Park Avenue, New York 16, N. Y.

To Wrap 1500-Mile Pipeline With Polyethylene Tape

Work has begun on a $3 million contract to wrap an entire 1500-mile pipeline with polyethylene tape. Although poly tape has been used extensively as a protective wrapping for pipelines, this reportedly is the first time that a major system has been completely wrapped with tape.

The pipeline runs from Baton Rouge, La., to Cutler, Fla. and is made of pipe varying from 18 to 24 inches in diameter. The contract represents the largest single order ever placed for a protective pipe coating of any kind.

Poly Wraps Win 32 Awards In Packaging Competition

Polyethylene bags and wraps took a total of 32 prizes recently in the third annual Flexible Packaging Competition, sponsored jointly by the National Flexible Packaging Association and Paper, Film & Foil magazine. Poly packages won more awards than were given to all other packaging materials combined. The top award of the competition went to a polyethylene package for girdles.

Papierfabrik Biberist's Modern and Orderly Operation

Eben Whitcomb
Editor-in-Europe
Paper Trade Journal

The Biberist paper mill, located near Solothurn, Switzerland, is probably one of the most modern of its kind in the world. The company was founded in 1862 with the erection of two paper machines and a production of 1000 tons per year. The mill has grown to five machines with an actual annual output of 40,000 tons (production capacity is 50,000 ton) of fine printing papers, utilizing 51,000 square meters of floor space.

Pulp Supply

The Biberist mill supplies about 25 per cent of its pulp from its own groundwood mill which is located nearby on a small mountain river. This pulp is delivered in wet form to the mill at Biberist. The balance of the pulp supply is chemical, of which two thirds is supplied by Swiss mills and one third is purchased from other European countries, especially Sweden.

Stock Preparation

Pulp is warehoused and handled by fork trucks which deliver the bales and wet pulp to an inclined belt conveyor. An entire furnish can be accumulated on this conveyor for quickly charging the Jones pulpmasters. Kaolin clay as received from England and Germany are stored in bulk and handled in slurry form for filling and also for the coating plant. Talc is also handled in bulk while diatomaceous earth, paper white, etc. are used in bags. The addition of alum (solution), rosin, talc, clay are all made at the pulper from a master control panel, at which there are calibrated timers to operate positive displacement Moyno pumps that deliver the desired amount.

After pulping the stock is dumped into one of two chests from which it is drawn for refining. The second chest may be used for changing furnishes, or for re-cycling the stock from the refiners.

Pulp is refined in a battery of ten Jones refiners for each machine. An interesting feature of this installation is the pictorial control panel which remotely controls all of the flow and power requirements for the system. Five of the refiner motors are two-speed, and can be run at either 500 or 1000 r.p.m. Power requirements at the refining section are regulated by frequent freeness tests at the output. Consistency of four per cent into the refiners is controlled by an Arca regulator. (Arca Co., Stockholm). A chest receives the refined stock for supply to the paper machine.

Cleaning and screening varies with individual machines. Dirtecs, Lindblad screens, Selectifiers, centrifugal separators by Voith, Vickery and centrifugal separators of their own design are all being used and evaluated.

Sveen-Pederson savealls are used with the effluent being returned for showers and furnishings. Solids are controlled at four per cent by an ARCA regulator through a saveall screen for addition directly to the system.

Paper Machines

All of the paper machines at Biberist are built by J. M. Voith. The year of installation and widths are:

Machine	Year	Width
3	1927	110 in. (2.80m.)
4	1939	90 in. (2.30m.)
5	1955	90 in. (2.30m.)
6	1958	130 in. (3.30m.)
7	1952	124 in. (3.15m.)

The older machines have also been extensively rebuilt since their installation, resulting in very modern equipment.

Stock and white water are supplied to the flow box of the machines by Moyno pumps thus eliminating the need for a stuffbox and overflow.

Four of their machines are of the same general design, suction couch, three straight through rubber and stone presses, one reverse press and a smoothing press. The anti-friction mounted drying sections are separated by a sizing press.

One machine is equipped with a Yankee dryer section for M.G. papers.

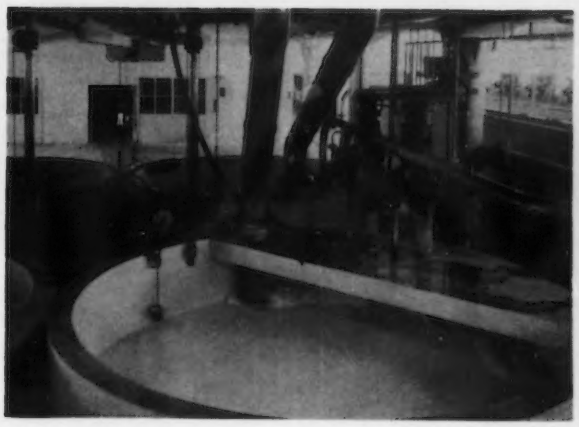
There are three calender stacks on each machine. Two tempering dryers which can be either water-cooled or steam-heated, a breaker-stack, and finally two anti-friction mounted calender stacks and an automatic Pope reel. The machines are equipped with automatic oiling, Beta ray basis weight gauges of German design, and capacitance-type moisture indicators.

Of the five paper machines at Biberist usually four are in operation while the other is shut down for repairs. This allows for the time necessary to fulfill the military service and vacation requirements of the crews. Only for a few weeks during the year do the entire five operate at the same time.

Finishing Operations

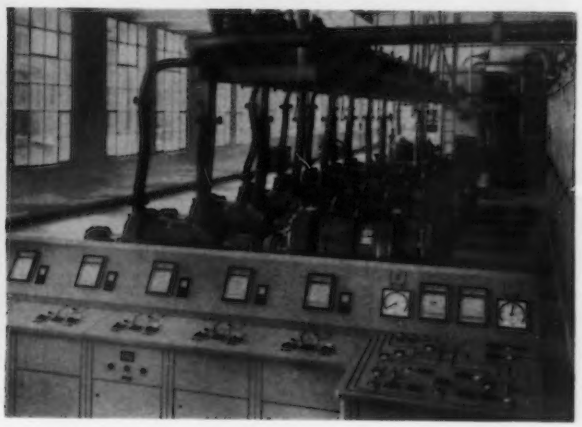
About 30 per cent of the mill's production is shipped as rolls. The balance is in sheets of plain or coated stock.

Kaolin clays from England and Germany used for coating and loading are stored in bulk form in this bin.

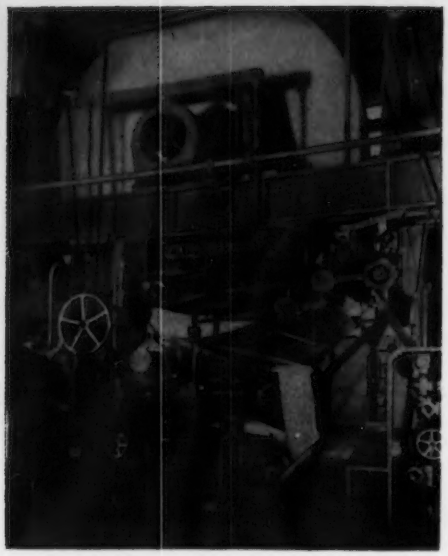


Stock from the pulpmasters is dumped in the chest preceding the refiners (foreground). Recycling chest is shown in rear.

Valve and motor control of the Jones high speed conical refiners is accomplished at this pictorial console.



Wet end view of #5 paper machine, built in 1955 by J. M. Voith. There are five machines in this mill that vary from 90 to 130 inches in width.



Machine #4 is equipped with a Yankee dryer for the production of machine glazed papers.

The anti-friction mounted dryer section on #7 machine. Exhaust steam from turbo-generator is used for drying the sheet.

Modern "kitchen" prepares starch, casein, and glue-base clay coatings.

Jagenberg single-side air-knife coater and drying chamber in operation.

Two of the cutters on which reels of paper are processed are of a new type supplied by Jagenberg. This cutter is equipped with two rotating fly knives which are geared so as to mesh together with a shearing action. This, reportedly, eliminates the problem of dust formation which is sometimes present in cutters which have a revolving fly knife and stationary bed knife. The cutters are equipped with backstands for eight reels of paper, and deliver cut sheets in an automatic layboy of the same manufacture.

Trimming is done on a guillotine cutter manufactured by Krause. This machine is fully automatic with push-button adjustment, safety interlock trip mechanism, an electric eye safety device for the knife opening, individually operated clamp and air film table.

All paper is hand sorted on conventional sorting tables. Heavy weight papers are machine-counted. Light weight papers are hand-counted.

Paper is packed either in corrugated paper boxes or in wood-frame packages. All paper is stocked and shipped on four-way wooden pallets which are supplied by the Swiss National railroad. As each pallet is shipped, replacements are supplied at no cost. This idea developed from observations by railroad officials of the use of pallets by the U. S. Armed Forces during the last war, and was adopted by them.

Power Plant Installation

An entirely new power plant has recently been installed by Sulzer Co. (Winterthur-Zurich) with instrumentation by Landis und Gyr (Zug.). There are two identical express boilers, one of which is a spare for the other. The fuel system is either crushed coal (10mm.) or heavy oil. In June of 1958, consumption was approximately 40 per cent oil 60 per cent coal.

Two Sulzer express boilers produce steam at 940 p.s.i. and 890°F to supply the Brown Boveri turbine. Generator output is rated at 4400 Kw. Shown at the right are boiler feed pumps.

Steam is produced at 940 p.s.i. (64atm.), 890°F, and is converted into electrical energy in a back-pressure turbine supplied by the Brown Boveri Co. (Baden, Switzerland) with inlet at boiler pressure and exhaust at 24.5 lbs. (1.7 atm.) This exhaust steam is used for paper drying and space heating.

A water turbine, around which the mill was originally built, continues to supply about six per cent of the mill power requirements. About 50 per cent is supplied by the steam turbine and the balance is purchased from A.E.K., a Swiss power company.

Training School Activities

Another interesting phase of work at the Biberist mill is the training of young new employees in a special school. Boys 16 years of age are given a six months training program in the theoretical aspects of various phases of paper making in classes, then six more months of work in various parts of the mill before going to work at a regular job.

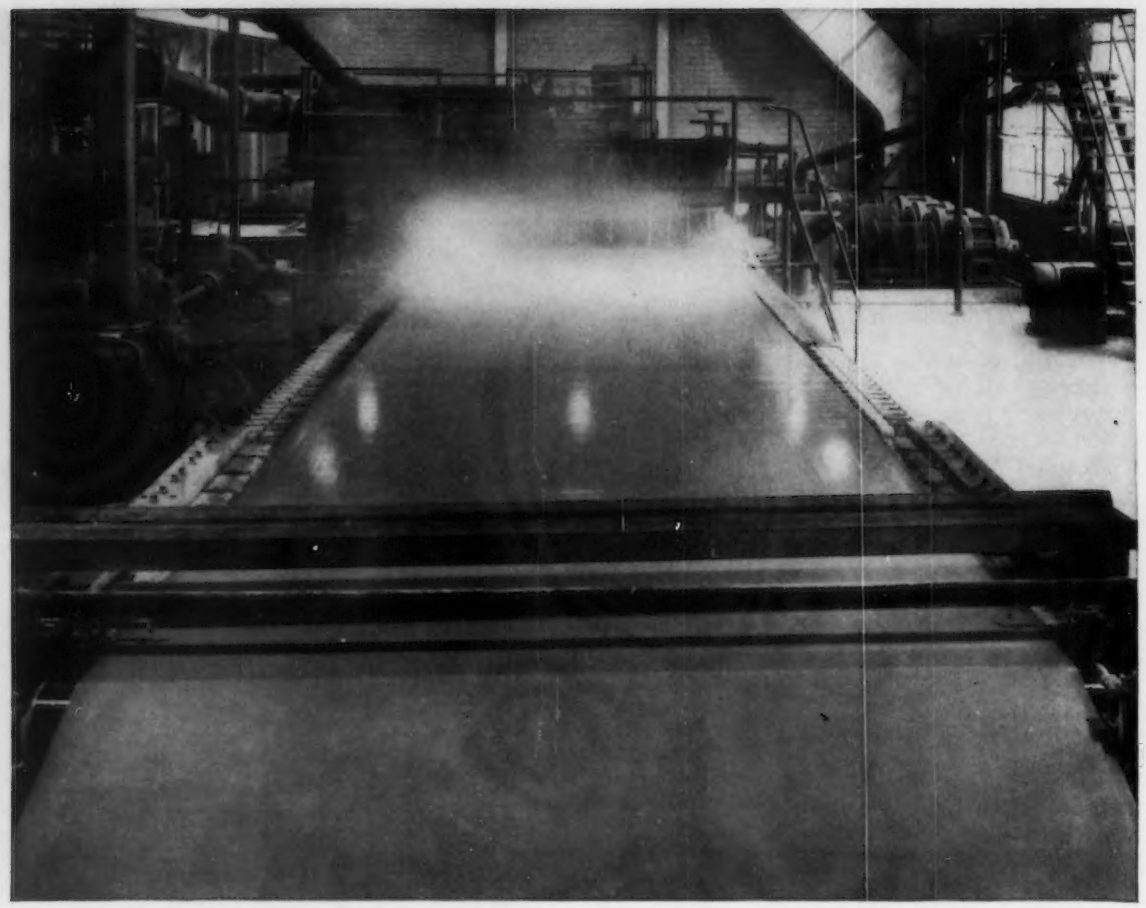
Paper Coating

About twenty-five per cent of Biberist's total production is in coated papers. Recently a number of older coaters have been replaced by two coaters supplied by Jagenberg. One is a single-side air-knife coater, the other a two-side roll coater. Both are equipped with drying chambers in which the sheet is supported by jets of air. A modern coating preparation room has been installed in connection with these machines for the preparation of starch, casein and glue base coatings.

Biberist is certainly an example of an expertly managed modern mill. This is reflected not only in the beautiful grounds, and clean white buildings, but particularly in the spotless housekeeping and aggressive approach to modern methods and tools of papermaking.

A visit to the Biberist, with the impressive backdrop of the Swiss Alps, is certainly a rewarding experience.

Part of the training program for young men includes grounding in the theoretical aspects of paper making, as depicted in this classroom scene.



A Complete Starch Line... *tailor-made to your needs*

Today's complex papermaking operations require a wide range of starches—starches specifically designed to do a particular job. You'll find that the complete starch line offered by Corn Products Company includes types for every phase of modern papermaking. These starches are available in so many varieties that *they can literally be tailor-made to suit individual requirements* and production problems of individual plants!

For example, in beater sizing, preferred starches for improved surface qualities plus excellent bursting and tensile strength, include the many varieties of Globe and pre-cooked Amijel. For calendar sizing, you'll find a complete line of Claro and Eagle starches, as well as Globe starches for enzyme conversion. In this operation, Globe and Excello dextrines and thin-boiling Foxhead starches are also used. For general coating, with good viscosity at high solids content, use Claro and new improved Ten-O-Film starches.

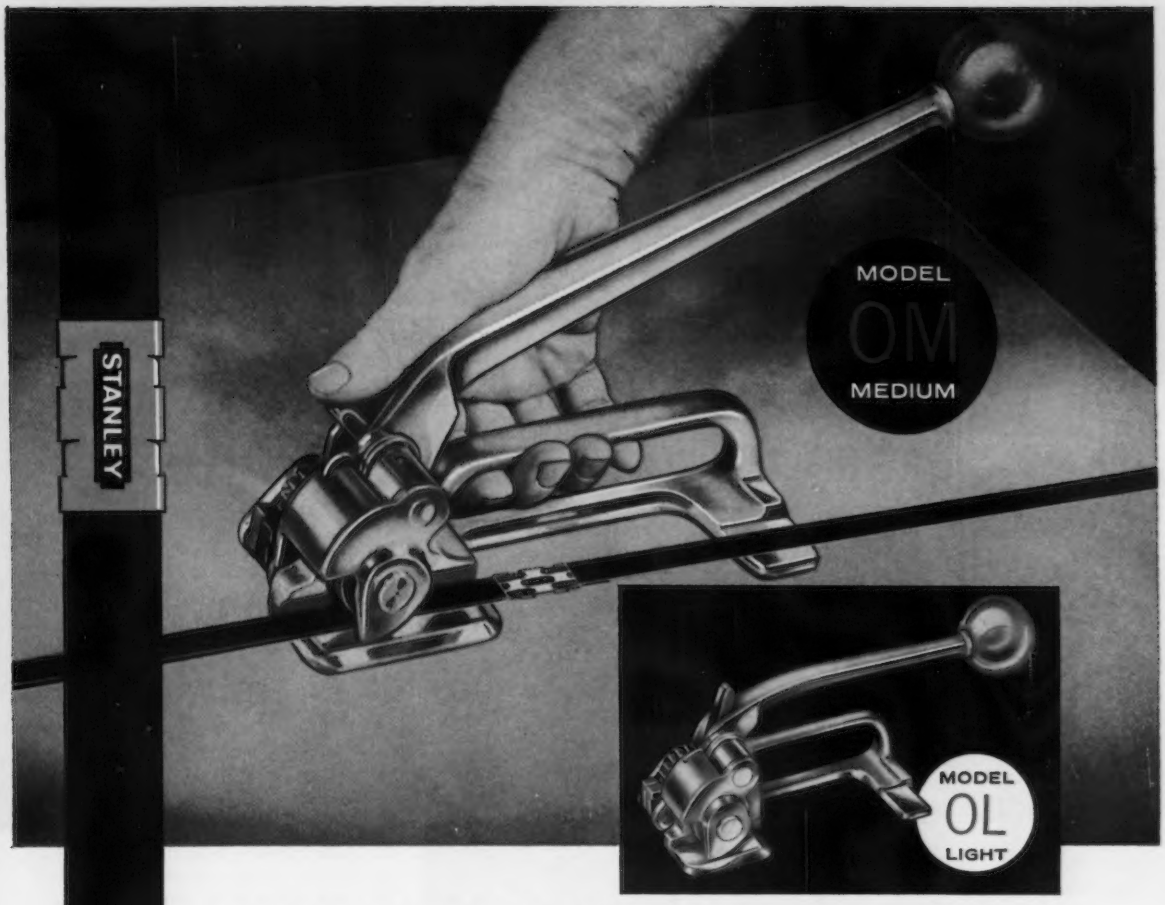
And the research staff of Corn Products Company, largest in the industry, is constantly at work developing new products to meet the changing needs of modern papermaking.

Our technical representatives are completely versed in the problems that arise with wet end additives. Their impressive field experience and continuing research into starch, evidenced by frequent publications in trade and technical journals*, is always at your service. Take full advantage of the facilities and experience of the world's largest corn processors—call our nearest sales office or write direct.

Fine products for the Paper Industry: GLOBE® • EAGLE® • FOXHEAD® • CLARO® • AMIJEL® CORAGUM® • TEN-O-FILM® starches • GLOBE® • EXCELLO® • LAM-O-DEX® dextrines and gums.

CORN PRODUCTS SALES COMPANY 17 BATTERY PLACE, NEW YORK 4, N.Y.

*A reprint on the results of corn starch usage is available on request from our New York office.



NEW STANLEY TIGHTENERS

Versatile...Lightweight...Sturdy–

The Stanley O Tightener sets a new standard of efficiency for tensioning steel strapping to the required maximum with a manually-operated steel strapping tool with unlimited take-up.

The O Tightener is versatile . . . used to steel strap packages of varying sizes, shapes and weights. Operates with equal ease and speed in any position. Easy to handle, and requiring fewer strokes for take-up, it reduces operator fatigue and saves time. It's a strap-saver too! Applying seals behind tensioning wheel cuts overlap to minimum required for maximum joint security. Tightening action is more positive because there are *two* holding pawls on tensioning wheel. Removal from strapping is instantaneous. The operator returns tightening lever to down position and slides tool from strapping.

FEATURES

- **Insertion, alignment of strapping is easy, quick.**
- **Light weight and balance assure handling ease.**
- **Sturdy construction means long life.**
- **Has unlimited take-up.**
- **Seals may be applied in front of or behind tensioning wheel.**

MODEL OL 3	3/8" STRAP
OL 4	1/2"
OL 5	5/8"
MODEL OM 5	5/8" STRAP
OM 6	3/4"

For more information, write STANLEY STEEL STRAPPING, Division of The Stanley Works, Dept. B, 1307 Corbin Ave., New Britain, Conn.

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AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • drapery, industrial and builders hardware • door controls • aluminum windows • stampings • springs • coatings • strip steel • steel strapping—made in 24 plants in the United States, Canada, England and Germany.

Paper Plays Part in Publicizing Pan-Am Jets

A famous calendar, published yearly by Pan-American World Airways, got that way through no accident. Often described as the world's finest, the utmost care goes into choosing the paper on which it is printed as well as the photographs for which it is renowned. The paper, fifteen carloads of it for the '59 calendar, must meet a variety of specifications including the ability to withstand extremes of temperature and humidity conditions. Another necessary property is the fidelity of photographic color reproduction. Here whiteness is very important.

This year's Pan American calendar of more than one million copies is the largest edition ever published. It carries 13 pages that run from December 1958 through December 1959. Published in two versions, executive and home, and in eleven language editions, the calendar helps build good will for Pan American and is an integral feature of the airline's public relations program.

Demand always outruns the supply shipped around the world to embassies, missions, travel agencies, ticket offices, airport terminals and universities in the 83 countries serviced by the airline. Eager merchants and peddlers in far-away places resort to ingenious devices to get copies to sell for framing. In many a Far Eastern bazaar, its pictures, carefully scissored from the date pad, sell for a premium. Even language teachers use them for classroom instruction. Long after 1959 has passed, its beautiful multicolor photographs will hang in countless homes, schools and offices from Detroit to Damascus.

Stiff Requirements for Paper

Flying by Pan Am jet is this year's calendar theme. To tell its 1959 story, Pan American wanted the richest, most sparkling color reproductions possible. Since a calendar's paper is so important to the reproduction of pictures, its composition is painstakingly planned more than a year in advance. Even beyond such technical laboratory requirements as opacity, moisture content, proper density and ink retention, the qualifications of a paper for such a worldwide calendar are many and varied.

This calendar must hang without curling, yet must reverse roll into shipping tubes, then unroll quickly and easily for hanging. It must stand the cold of Iceland and the heat and moisture of the tropics without cracking or waving. It must be as white as possible for the true colors of its pictures to reproduce properly.

Optical Bleaching Agent Used

To create this whiter sheet, paper production experts at Hammermill Paper Co. tailored the raw pulp to finished paper specifications for high-fidelity press work. They used a fluorescent white shade developed by American Cyanamid as a brightener. Known as Calcofluor White, it provides the 1959 calendar stock with a whiteness that lends depth and brilliance to its photographic reproductions. Besides producing strong color contrast, this brightener is said to emphasize highlights in the shadow areas. At the same time, it helps create a crisp, bright color.

Fluoresecent white dyes, or optical bleaching agents as they are often called, make paper whiter and brighter by improving its light-reflecting properties. They function by absorbing light in one wave length and re-emitting it in another. They absorb the invisible, ultraviolet portion of light and re-emit some of it in visible form. Their effect on paper, of course, is to increase the light reflected from it.

Economically and visually, optical bleaching agents are claimed to be among the best and most effective whitening agents known to the paper industry. They are, however, rarely used alone. They are added to supplement and increase the whiteness and brightness of other methods of producing white paper.

Calendar Pictures

Since 1954, quality and subject matter of Pan American calendar picures have been the responsibility of Chester Kronfeld, chief photographer for the company. Besides following the general rules of good photography, his pictures have had to include specific travel ideas the company wants to emphasize. If a picture is of Brazil, for example, it must say "This is Brazil." This impression is created by photographing landmarks in settings that show surrounding areas. Extra interest is often gained by including natives of the country or American tourists.

Today's Pan American calendar is printed on Brown & Bigelow's multicolor lithographic press, the 76-inch Harris, one of the largest of its kind ever built. Sheets of paper 49 inches by 71 inches coming off the press carry eight full-size calendar-page reproductions in 5 colors. More than twenty million sheets of paper are used in the run.

Published in eleven language editions, the calendars undergo changes for each. Eleven sets of special printing plates are made to handle descriptive material, holiday information, thumbnail decorations and even number changes (as in the Arabic edition). The eleven languages include German, French, Spanish (European), Spanish (Latin American), Italian, Portuguese, Chinese, Japanese, Arabic and two English versions, one for American and one for other English-speaking countries where holidays differ.

Gift shop in Antigua, British West Indies, displaying a Pan American World Airways calendar.

Eleven language editions cover the entire world.

Picture from the 1954 Pan American calendar catapulted the hamlet of Singleton, England into one of the main tourist attractions.

How Hot Water Is Produced Economically

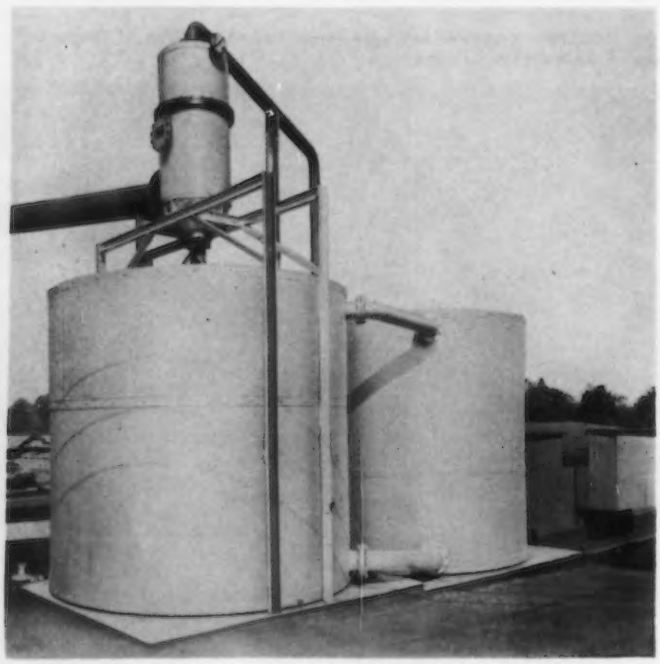
Cost-conscious pulp and paper mills requiring large quantities of hot water are using direct contact steam heaters these days. This type of heater produces hot water economically using plant exhaust steam (at low pressure or at vacuum to 15 inches Hg) condensed in the liquid being heated. High capacity heaters such as those made by Schutte and Koerting are simple in design and have no moving parts, therefore maintenance requirements are minimal. Water containing semisolids is handled without difficulty. The heating, by condensation of steam in the liquid, is highly efficient, continuous, and fast. A temperature rise of 130°F. is attainable under some conditions. These heaters have been built in capacities to 9000 g.p.m., but this is not the fixed maximum. Physical size determines capacity, and there's ample leeway before size makes limiting problems in fabricating and shipping. Cast iron and fabricated steel are the standard materials of construction, but stainless steel is frequently required for paper mill service.

The heating is accomplished by direct contact of steam and water. The steam condenses in the water and gives up about 1000 Btu, per pound condensed. Cold water enters at the top of the heater and flows downward through and over the water distribution trays. Steam enters at the side near the bottom and travels upward through curtains of water where it condenses. Hot water with condensate flows from the bottom outlet of the heater, usually into a tank or reservoir.

In another type of SK high capacity heater the water enters at the side near the top, through a ring of nozzles which make converging spray to disperse the water in fine particles. The upward-traveling steam is condensed in the highly-turbulent water.

Completely automtaic control is applicable to these heaters. Primary control is through a level controller on the cold water flow to maintain correct level in the hot water receiver. A controller sensing the hot water temperature from the heater regulates steam flow to maintain the hot water at the set temperature.

An SK direct contact steam heater is shown below during installation at the Downingtown Paper Co. plant in Downingtown, Pa. It is used to provide hot water for process applications. Capacity is 550 g.p.m. of water heated from 90° to 150°F. when supplied with sufficient plant exhaust steam at atmospheric pressure. This heater was built of type 2S (half-hard) aluminum to minimize weight.



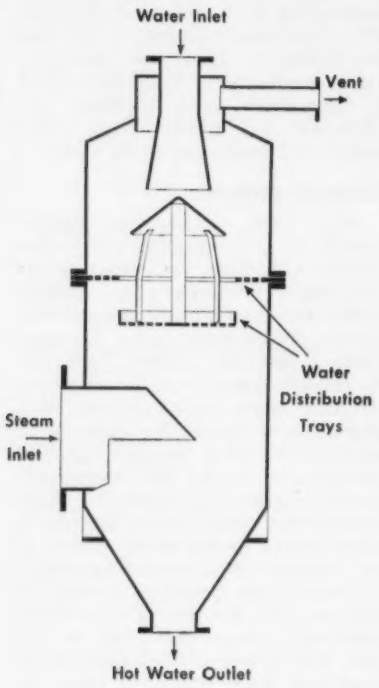


Illustration courtesy of Firmenich Incorporated, makers of quality flavors.

Life-like letterpress–with RHOPLEX

This color illustration, printed by letterpress, owes much of its sharpness of detail and richness of color to the paper on which it is printed . . . paper which uses RHOPLEX all-acrylic emulsion as the binder in its coating.

If you are a printer, look closely at this sheet, note the freedom from picking, the uniformity of ink hold-out, the overall quality of the reproduction.

If you are a papermaker, you'll like the chemical and mechanical stability of RHOPLEX emulsions . . . the trouble-free ease with which coatings handle on the machine, and you'll welcome the lack of objectionable odor in your coated paper.

Whether you are interested in fine printing papers, container board or food wrap, you'll want the information about RHOPLEX B-60A and RHOPLEX B-15 in our booklet "RHOPLEX Acrylic Emulsions in Paper Coatings". Write for your copy today.

RHOPLEX is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.

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THE RESINOUS PRODUCTS DIVISION

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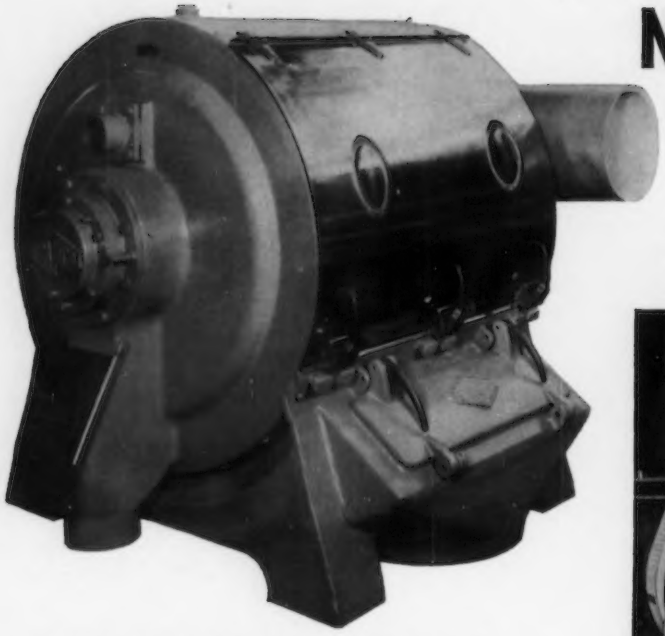
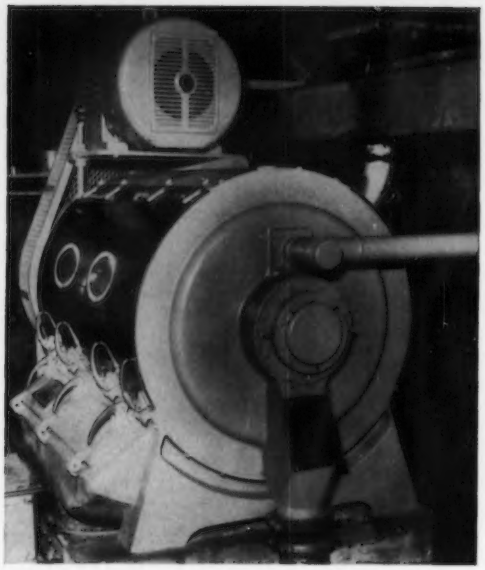


NEW ADVANCES IN LOW COST QUALITY PULP SCREENING

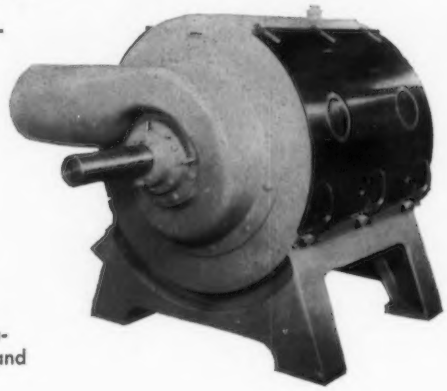


IMPCO CENTRIFUGAL SCREENS FOR:

Washed Stock Screening
Hot Stock Screening
Sealed Black Liquor Knotting
Fibre Length Classification
Paper Stock Cleaning

The new Impco Centrifugal Pulp Screen is the latest example of the progress made toward the ultimate in low cost quality screening. This screen incorporates many improved principles and features such as:

- — a stock inlet allowing direct top, bottom, front or rear infeeding which simplifies installation piping;
- — a tangential inlet which changes flow direction from linear to rotating, yet retains velocity head;
- — a special stator which provides uniform internal distribution of pulp;
- — a patented high-efficiency rotor which increases capacity without additional horsepower;*
- — a bottom accepted stock outlet permitting all sub-floor piping;
- — a full length quick-opening door for routine accepted stock sampling;
- — an accessible rejects outlet for tailings inspection or sampling.



These features are resulting in peak capacities and high discharge consistencies at lowest horsepowers. Reject richness is readily controlled. Engineered simplicity is characteristic of the entire line of Impco Centrifugal Screens which require very little operating attention and mechanical maintenance.

* U. S. Patent No. 2,845,848.

IMPROVED MACHINERY INC.
NASHUA, NEW HAMPSHIRE

IMPCO

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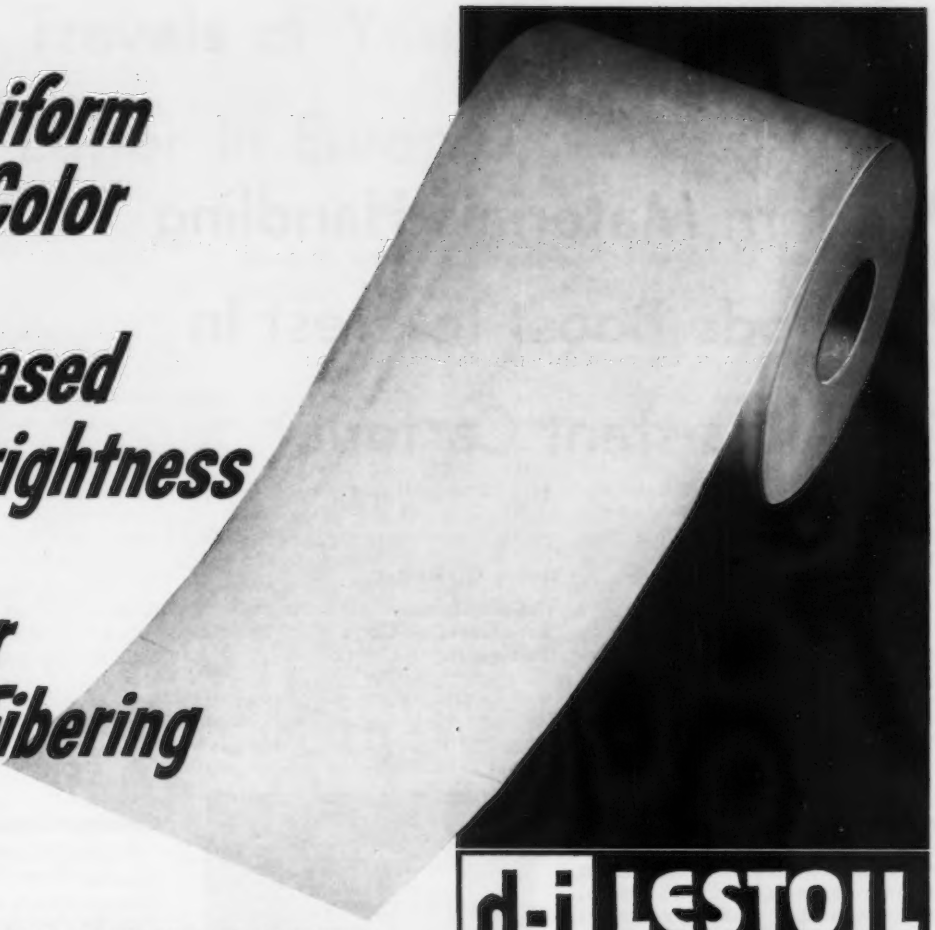

Uniform Color

Increased Brightness

Faster De-Fibering

WHEN YOU DE-INK WITH... d-i LESTOIL LIQUID DETERGENT

d-i LESTOIL

1. Dissolves and disperses ink, wax, oils, asphalt, fillers and other contaminants.
2. Promotes rapid and complete defibering — makes fibres free-flowing.
3. Keeps entire system clean — helps prevent slime deposits.
4. Prevents sticking on Yankee Dryers.
5. Is ideal for washing felts — on or off the machine.

And not only on tissue . . .

In mill after mill, in constant production on a variety of furnishes, de-inking with d-i LESTOIL has produced significant improvement in quality without any change in equipment.

d-i LESTOIL contains powerful wetting, penetrating, emulsifying and dispersing properties. It breaks down the adhesive qualities of ink, wax, asphalt and other contaminants and floats them out, leaving stock clean and free-flowing.

It promotes rapid and complete de-fibering, and prevents redeposit of contaminants in the stock or on wires and felts — often at an appreciable saving in cost over other methods.

But find out for yourself — at our expense — what d-i LESTOIL can do for *you. For a generous free sample and descriptive literature, write today to:*

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a subsidiary of Adell Chemical Co.

Modern Materials Handling Methods Boost Interest In Skid-Resistant Cartons

Irving G. Hefter
Vice-president,
Stone Container Corp.
Chicago, Ill.

The need for effective skid-resistant boxboard shipping cartons is being emphasized by modern materials handling methods incorporating palletized loading, fork lift trucks, higher warehouse stacking, and more rapid production lines. While such handling methods are an essential part of modern operating methods, they have also brought about a jump in the amount of goods damaged through toppling pallet loads and warehouse stacks. The problem is virtually universal. Goods need not be breakable to benefit from anti-skid treatments. Battered canned goods, for instance, are certainly at a competitive disadvantage on store shelves.

Interest in anti-slip applications has increased tremendously in the past few years and the pattern will surely continue. In addition to the problems imposed by mechanical handling, more and more emphasis is being placed on improving the printing qualities of containers, which usually means slicker surfaces, and, therefore, slipperier boxes.

Experience and Stone

Stone has had a wide variety of experience with various types of anti-skid treatments, and pioneered in the spray application of anti-skid agents by using Du Pont's "Ludox" colloidal silica.

Irving G. Hefter

We have been spray applying 'Ludox' for the past two years, and are now able to apply coatings on both our 78 and 95 inch corrugators, giving us greater flexibility in production planning.

"Ludox" was selected after a number of products were tested in Stone's laboratories. Treated board proved to be over 100 per cent more effective than non-treated, and at least 50 per cent more efficient than some other anti-skid treatments.

Some of our customers who carried on tests in their own laboratories have specified that their containers be treated with 'Ludox'. They have found that its efficiency does not deteriorate with age, and that is is only slightly affected by repeated rubbing.

Customer Benefits

Primary benefits offered by treated containers are lower breakage and damage losses, and reduced accident hazards due to falling boxes. Some companies which formerly tied a band around the top layer of boxes on each pallet load have found this practice unnecessary with treated containers. In addition, many companies see a promotional advantage in their treated boxes, pointing out that distributors and dealers often face warehouse and handling problems similar to their own, and, therefore, also benefit from the anti-skid application. "Ludox" also imparts a degree of soil retardancy to packages, keeping them cleaner and neater. Boxes stack safer and resist toppling.

Shipping room people noticed the difference in performance immediately, and we have also received favorable comments from truckers who are plagued with shifting loads. We definitely look for an increase in anti-skid applications, and are glad that our two years' experience with 'Ludox' colloidal silica will enable us to effectively serve any customers who decide to take advantage of what it has to offer. It is effective, low in cost and, in our opinion, offers the best all-round answer to the slippage problem.

Further Travels of Your Roving Editor in Europe

Eben Whitcomb leaves his "Maryleigh" to visit mills in Italy, Switzerland, and Germany.

The "Maryleigh" made rather slow progress from Barcelona across the Gulf of Lions and along the south of France. Head winds most of the way delayed progress but the stops in picturesque ports along the Costa Brava and the Coté d'Azur were more than enough compensation.

The Paper Trade Journal's "traveling editorial office" finally reached its "base" at Villefrandre-sur-mer, a small protected harbor located between Nice and Monaco, about five miles from each place. There, we immediately went into drydock for cleaning and painting the ship's bottom.

After a short trip to Italy, and visits to nearby Cannes and Monte Carlo, your editor set out by car along the Rhone valley in France toward Switzerland.

Reaching Solothurn, our first stop was at the Biberist Papierfabrik. This five-machine mill makes a wide variety of chemical and mechanical wood papers and also has a substantial production in off-the-machine coated grades. This interesting mill which is perhaps one of the most modern of its kind in the world will be the subject of a separate article.

Machines at Von Kraewel Mill

We traveled through western Switzerland and into the Black Forest section of Germany. There we met our host, Hasso Von Kraewel, production manager of Papierfabrik Kurt Von Kraewel located in Biberach near Offenburg. Mr. Von Kraewel's mill has two Yankee machines producing 320 tons per week of M. G. specialty and wrapping papers from an entirely waste paper furnish. Mr. Von Kraewel has made many innovations in his mill, several of which are the result of experience gained during a year's work at Eastern Corp. in Maine, which he completed three years ago.

One particularly interesting piece of equipment recently installed in his plant is a completely automatic Jagenberg machine winder. Some features of this machine are: backstand adjustment by electric remote control to accept two different lengths of paper reels, pneumatically controlled sheet tension, electric sheet guide, shear cutter knives sleeved on an expanding (pneumatic) shaft permitting very quick and convenient roll-width changes, automatic roll ejection and an integral roll lowering device.

A second interesting machine is a sheet cutter and layboy by Strecker which permits cutting and laying-up diamond or parallelogram shaped sheets of paper. Thus these reams can be die-cut into envelope blanks with an absolute minimum amount of waste. This waste occurs in instances where paper must first be cut square, then trimmed diagonally for shipment.

Haindlsche Newsprint

Mr. Von Kraewel then arranged a visit at the Haindlsche Papierfabriken at Schongau in the Bavarian section of South Germany through the courtesy of Dr. Haindel, and also at the J. M. Voith Machine Works at Heidenheim.

At the Haindlsche Papierfabriken I was received by Dr. Suttinger who personnally conducted me through his very interesting four-machine newsprint mill. Production here is 350 tons per day on machines built by Voith and running at speeds to 1500 feet per minute. Also in operation is a presure headbox supplied by Voith utilizing the new vertical slice lip design which is performing quite well.

Production of groundwood, primarily by water-powered magazine grinders, feature "precooking" the spruce logs in hot water before barking in batch (30 cu. ft) barkers, and loading of the grinder magazine by the use of fork trucks. This entire technique was originally introduced by Dr. Haindel.

At Heidenheim in central Germany a very interesting day was spent with Mr. Karl F. Schonemann. There we inspected various operations in the fabrication of all types of paper machine components, and visited their extensive research and testing laboratories. Of particular interest were their new type pressure headbox with a vertical adjustment of a slice lip knife to compensate for across the deckle basis weight variations. The other advancement is their completely enclosed spiral bevel dryer drive which permits full accessibility to the drive side of the dryers.

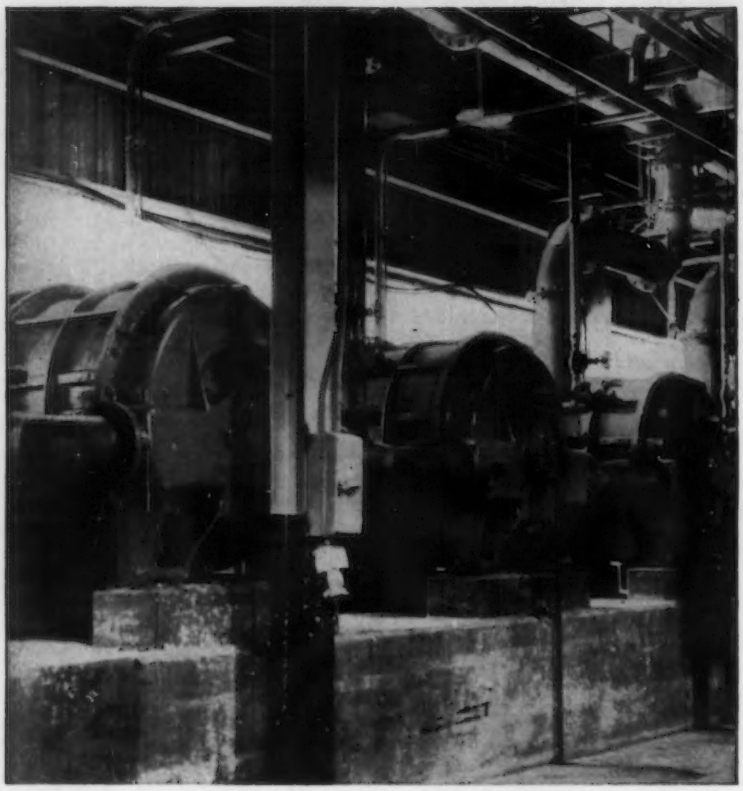
On to Kirchundern

From Heidenheim,, we proceeded to Kirchundern in the Ruhr district of Germany. There we were welcomed by Mr. Hermann Grunewald with whom the author had worked in America. We visited the Pulp and Paper Gebr. Grunewald KGaA (cellulose und papierfabrik) located in Kirchundern with Mr. Herbert Grunewald the production manager of the mill. This plant produces about 250 tons per week of wrapping, creping and tissue grades. It also has a 20 tons per day capacity sulphite pulp mill producing unbleached pulp from local spruce. The balance of the furnish consists of waste paper and groundwood.

The cooking acid is made by burning pyrites which are mined locally. One of the most interesting features of this plant is the recovery system which evaporates waste liquor and wash water in a modern four-effect stainless steel system to 50% solids. This concentrated effluent is then sold in tank car quantities to the iron industry in the Ruhr for making Fuller's earth for casting.

Their two Yankee cylinder machines are of conventional design. Converting operations at the plant include four-color gravure printing of wrapping grades, off-machine dry creping, and paper napkin embossing and converting.

What, actually, do Vacuum Pumps on paper machines handle?



Paper mill engineers know that it is actually a mixture of air and water vapor, but the custom of rating vacuum pumps in terms of air capacity alone causes this important fact to be frequently overlooked.

The presence of this water vapor causes a considerable reduction of the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump the bulk of this water vapor is effectively condensed, due to the Nash operating principle. The air handling capacity of the Nash is therefore not reduced.

That is one of the reasons why Nash Vacuum Pumps are standard in over a thousand leading Paper Mills.

NASH ENGINEERING COMPANY

443 WILSON ROAD, SO. NORWALK, CONN.

PJT NEW LITERATURE

Automatic Tension Control

Maintains constant tension in web leaving the unwinding roll, regulates it through other processing, and controls tension web running to the winder. Tells why it is truly automatic and practically maintenance free. Bulletin. Mount Hope Machinery Co., 15 Fifth St., Taunton, Mass.

Bracing Skids of Paper in Box Cars

Includes a step-by-step description of the bracing method used by Hawthorne Paper Co., Report U1-12. Acme Steel Co., 135th St. & Perry Ave., Chicago 27, Ill.

Duratrem Flooring

Contains illustrated sales copy on this heavy duty flooring which resists oils, acids, alkali, hot water. Tremco Mfg. Co., Cleveland, Ohio.

Facts on Testing

Covers the ground all the way from air grips for tensile testers, new methods of cutting samples, descriptions of unique non-slip textil grip, a new adhesive tester and a number of innovations and accessories for the Elmendorf tearing tester. Report 5901. Thwing-Albert Instrument Co., Penn St. at Pulaski Ave., Philadelphia 44, Pa.

Electronic Circular Chart Flow Rate Recorders and Controllers

Describes complete line in specification sheets 51-1102G-1 to 5, inclusive. Fischer & Porter Co., 846 Jacksonville Rd., Hatboro, Pa.

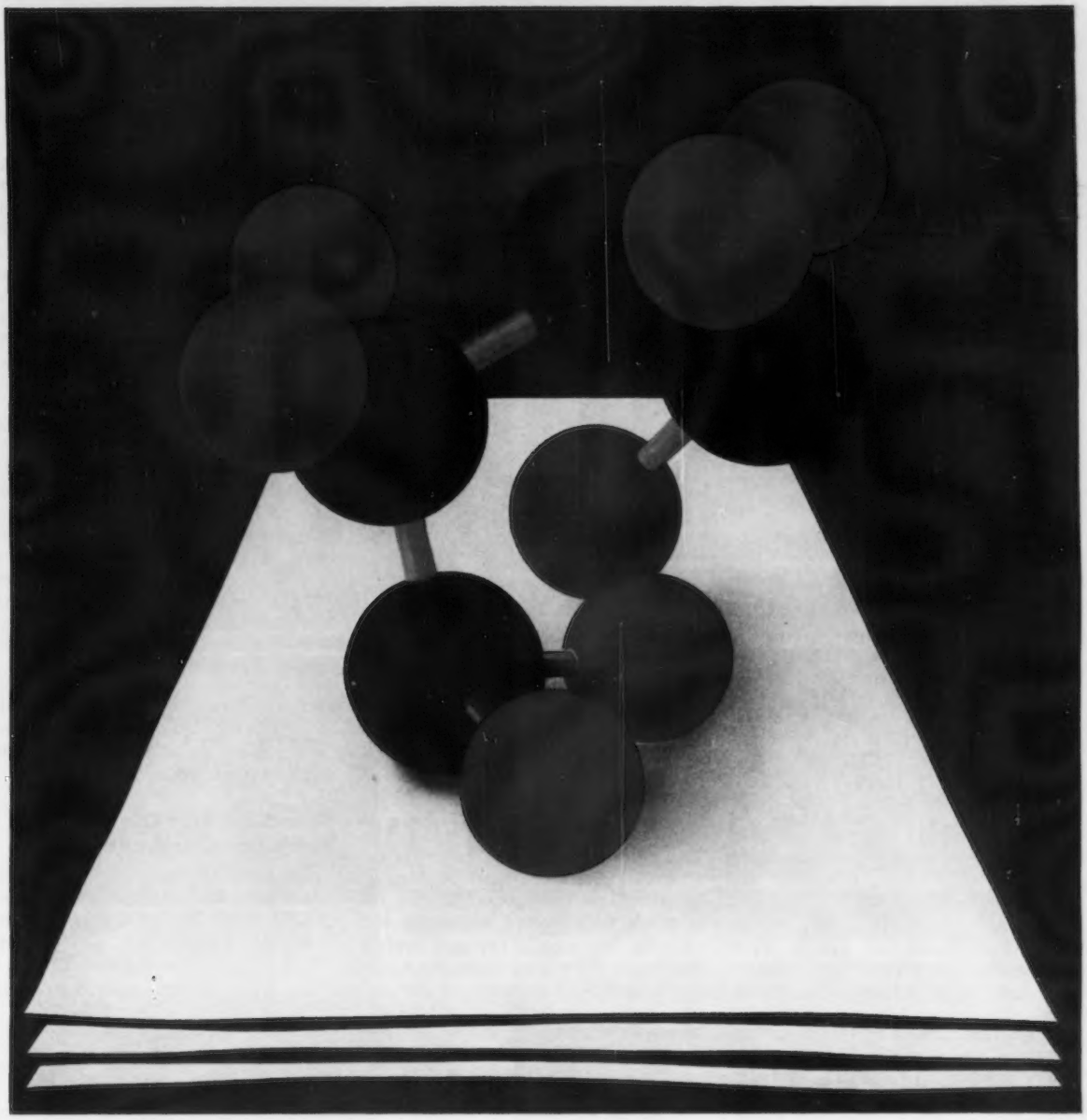
Pillow Block Roller Bearings

Describes line that includes twenty basic housings that will accommodate 94 separate spherical roller bearings. Some housings take as many as eight different bearing sizes and up to 11 shaft sizes. Also enumerates detailed specifications. Catalog 100. Miether Machine Works, P. O. Box 3907, Odessa, Tex.

SW Belt Saver Pulleys

Gives diameter, face width, minimum and maximum bore, approximate shipping weight and list price of almost 500 different pulley sizes. Bulletin 35-D. Sprout, Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

How **Dewey and Almy Chemistry** helps put your best ideas on paper



Today's fine coated papers are the result of close cooperation between paper makers and chemical specialists. One such firm of specialists is Dewey and Almy, which puts nearly *forty years* of emulsion experience at your command.

Dewey and Almy pioneered in the field of organic and colloidal chemistry in 1919. Since then we have produced a steady flow of useful compounds . . . emulsions . . . dispersing agents . . . adhesives . . . additives . . . to meet the growing needs of industry. Few firms in the world approach our depth of experience in these products.

And while this knowledge was being developed, Dewey and Almy was systematically adding to its understanding of the problems of paper making and converting. We have probed the area of cellulose fibers, for example, since the early 'thirties.

These dual realms of ability are now combined, with scientifically engineered products for the paper industry: DAREX paper coating emulsions, and DAXAD pigment dispersing agents. You are cordially invited to take full advantage of our research and production facilities . . . as well as our products . . . *to put your best ideas on paper.* Write today for further details.

W.R. GRACE & CO.
DEWEY AND ALMY CHEMICAL DIVISION

62 Whittemore Avenue, Cambridge 40, Massachusetts

NEW EQUIPMENT & SUPPLIES

TRADE-MARKED FAIRCHILD after its inventors, this expanding shaft which quickly engages cores for winding and unwinding operations utilizes a heavy rubber tube secured to a hollow core shaft; capable of supporting heavy stock rolls. The rubber tube is encased in a perforated steel sleeve which is mounted to the core shaft. When expanded by air pressure, the rubber "bubbles" grip the core securely. No moving mechanical parts are employed and all parts are easily removable for service. The shaft is manufactured by the Dilts Div., of the Black-Clawson Co., Fulton, N. Y.

Machine Hood Has Fiberglass Economies

A paper machine hood made of polyester fiberglass, designed and built by Corrosion Controllers, Inc., is now being distributed through Mead Pulp Sales, Inc., 118 W. First Street, Dayton, Ohio, it has been announced by Nelson S. Mead, president.

The light weight of this open-type machine hood makes it easier and more economical to install. A tough and resilient material, polyester fiberglass is able to withstand severe impacts. With its increased resistance to corrosion, the hood is said to outlive other materials.

Another advantage is the translucence of this material itself. With plenty of light coming through, employees can work with the machine more easily and safely. Because the hood is easier to keep clean, reduced housekeeping costs can be an important saving. Underwriters list the hood as fire retardant, Mr. Mead added.

The fiberglass material has permitted Corrosion Controllers' engineers to make refinements in its design to effect more efficient removal of moisture from the air above the machine and provide maximum circulation for ventilation and drying. The hood is custom designed to individual building and machine layout, roof characteristics, and available steam pressure and power current.

Pressure, Flow Recorder Utilizes Transducer

Measurements of pressure, flow and other variables, detected by 3-terminal potentiometer (resistance) type transducers, can now be accurately indicated and recorded by an adaption of the Leeds & Northup Speedomax Type H instrument. Utilizing a ratio form of Wheatstone bridge circuit, the Speedomax recorder is designed to operate with transducers having a total resistance between 1000 and 10,000 ohms.

Supplied in either round- or strip-chart models, these Speedomax Type H instruments can be equipped with any of L&N's wide range of automatic control systems. For complete details, request data sheet ND 46-20(2) from Leeds & Northup Co., 4939 Stenton Avenue, Philadelphia 44, Pa.

Novel Process Recovers Spent Sulphite Liquors

U.S. and foreign patents have been allowed on a recovery process that may change the spent sulphite liquor problem from a loss to a substantial profit, according to a statement by H. H. Clark, of Oshkosh, Wis. Known as the Clark Refrigeration process, the first commercial installation is anticipated in 1959 pending completion of the first continuous-cycle pilot plant and the formation of an organization to market and install equipment.

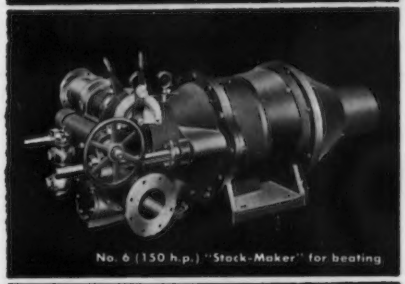
Cooperative investigation between various sulphite mills and the Sulphite Mfgrs. Research League in Appleton, Wis., indicate that a 150-ton mill would require something like one-fourth of its capital investment expended in a hot reduction system to convert an annual loss of $125,000 cost in equivalent fuel to a net profit of $85,000. It is said that this process eliminates stream pollution through the reuse of water previously discarded in the acid cycle; and that the reuse of chemical elements is permitted because they are not polymerized during the refrigeration process.

Stand-Up Electric Truck Features Compact Design

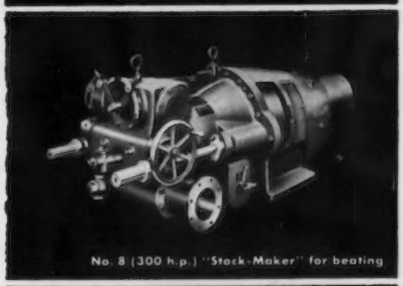
The Hustler DTL series electric truck features a GE class B, silicone insulated motor, full vision of forks from driving position, direct steering on roller-mounted on 15½ inch ring gear, fast maintenance of all

electrical contacts and hydraulic controls which are mounted on the undersides of the hinged top, optional 360° steering, and rigid construction consisting of 2-inch plate steel sides

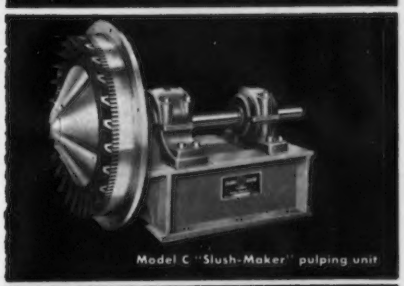
"Stuff-Maker" for jordaning



No. 6 (150 h.p.) "Stock-Maker" for beating

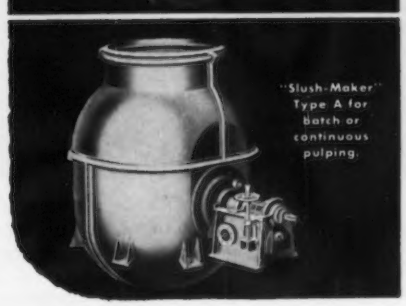


No. 8 (300 h.p.) "Stock-Maker" for beating



Model C "Slush-Maker" pulping unit

"Slush-Maker" Type D for continuous dry end pulping.



"Slush-Maker" Type A for batch or continuous pulping.

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Around the world the Morden name stands for quality and service in stock preparation equipment

*

If your mill does not yet have the advantages of Mordenized stock preparation, we'll be happy to send you our Morden Catalog, and to visit you for an in-the-mill discussion of your requirements.

MORDEN

MACHINES COMPANY

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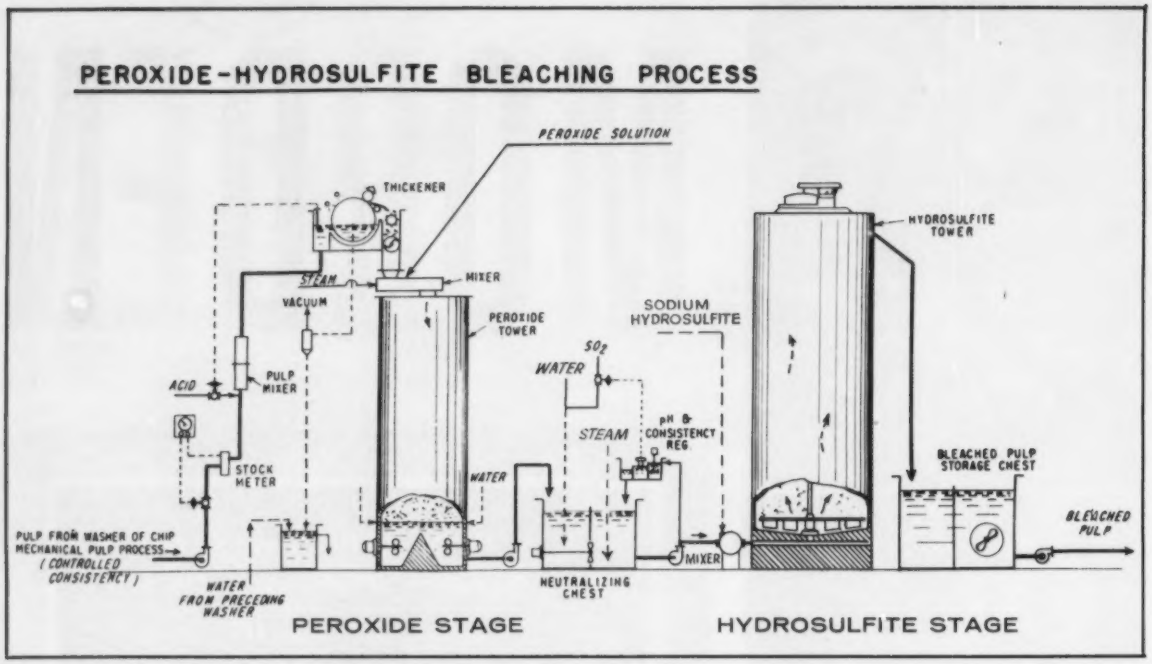
UNITED STATES REPRESENTATIVES—Northeast: Orton Corporation, Fitchburg, Mass.; Midwest: Dan B. Chapman, Appleton, Wis.; South: Brandon Sales Inc., Greenville, S. C.

How Gould Paper Company peroxide bleaching method



TYPICAL TWO-STAGE BLEACHING SYSTEM starts with washing the pulp to remove chemicals used in initial chip treatment. Next, the slurry is acidified and thickened to 15% consistency. It is then bleached with peroxide and neutralized with sulfur dioxide.

The pulp is next diluted to 4% consistency and pumped to hydrosulfite tower. After bleaching and washing, it is then pumped continuously into the bleached pulp storage chest. After an additional refining step, the pulp is incorporated into the paper furnish.

CHECKING PULP SAMPLE during acidification step prior to peroxide bleaching. Acidification step was suggested by Du Pont technical men to insure that pulp would be bleached to maximum brightness.

MASTER CONTROL PANEL keeps tab on entire bleaching process from beginning to end. Panel includes instruments that make trace recordings of data at critical points throughout bleaching process.

BLEACHED PULP is inspected by C. R. Lombard, Du Pont Technical Representative, after final washing before storage. Brightness is now 78-80 G.E. units . . . 35 points higher than unbleached pulp.

profits with the Du Pont for chip mechanical pulp

"Now we can use our hardwoods... get 78-80 G.E. pulp brightness... and we've upgraded our line"

—says R. W. Luethi, President and General Manager, Gould Paper Company, Lyons Falls, N.Y.

Gould Paper Company is the first to use the two-stage peroxide-hydrosulfite process for bleaching chip mechanical pulp. President R. W. Luethi reports: "We've been able to get into more profitable lines such as high-quality book papers since we adopted this process—and now we can use local hardwoods, such as birch, beech and maple, by the application of this cold soda process.

"Peroxide bleaching eliminates the yellowish cast our pulp had with our former hypochlorite system; it gives better whiteness and 78-80 G.E. brightness . . . *35 points* over unbleached pulp. Production is up, too, because of the better yield. In fact, plans are under way to double our present production by using this peroxide bleaching process."

DU PONT SERVICE CAN HELP YOU, TOO. Du Pont Technical Representatives worked closely with Gould's staff from initial planning to installation and operation of equipment. A special acidification step was developed by Du Pont to help Gould achieve pulp with maximum brightness. Practical technical men advised where Gould's existing equipment could profitably be used in the new system.

Du Pont know-how, gained through long and practical experience in the field of pulp bleaching with peroxides, made possible this modern bleaching process that Gould Paper Company is using so advantageously. Since Gould first went on stream, other mills have adopted this peroxide process for bleaching chip mechanical pulp and are enjoying its benefits.

SEND FOR FREE BOOKLET that describes in detail the Du Pont technique for bleaching chip mechanical pulp. Just write to the address below.

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cut storage space by 60%
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simplify and speed up handling
step up efficiency, save money

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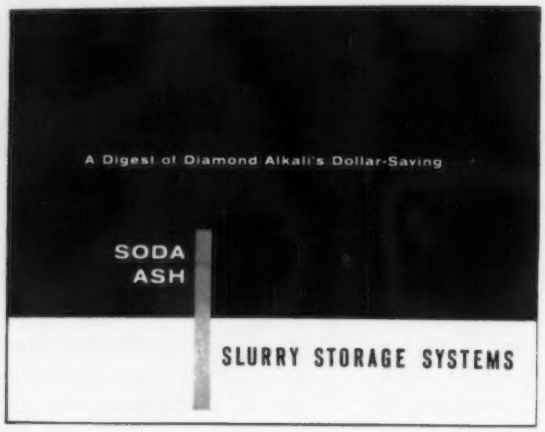

This 16-page book is loaded with facts, photos, and full-page diagrams showing the three alternate Diamond-developed slurry storage systems now used in many plants. The book is yours, FREE. Mail the coupon today.

For complete information or informed technical service, call your Diamond Representative or write Diamond Alkali Company, 300 Union Commerce Bldg., Cleveland 14, Ohio.

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CHLORINE ☐ CAUSTIC SODA ☐ SILICATE OF SODA ☐ SALT CAKE ☐

and 9-inch solid steel base plate. A large battery compartment accommodates battery sizes up to 648 ampere-hour capacity.

Furnished in 2000-and 3000-pound capacities on 24-inch load centers, the Hustler measures 59 inches long (less forks), 38 inches wide, and 57 inches high to top of steering wheel. It has a turning radius of 50 inches, provides inching control, reverse and four forward speeds to 6 mph.

Additional data may be had on request from The Heifred Corp., Church & Elm Streets, Willoughby, Ohio.

Rubber Wedges Stop Paper Spoilage

The Molded—Extruded Division of the Goodyear Tire & Rubber Co., Toronto 14, Ontario, has introduced a rubber wedge that "cradles" rolls of paper. According to company engineers, dents, tear, and rips to the outside roll layers are reduced; corrugated, saw-tooth edges prevent roll slippage and permit pyramidding of rolls; internal air space provides resiliency in the wedges without collapsing them. They are available in 6-, 8-, 12-, and 48-inch lengths.

Higher Rated Variable—Speed Drive Has Small Size

The new Reliance Super 'T' V*S Drives, which have the same basic functions as existing industrial variable-speed units, have been patterned around the newly redesigned NEMA a-c. and d-c. motors and generators. According to company authorities these new rotating machines reveal size reductions up to 35 per cent over previous units from 3 to 350 horsepower.

In conjunction with Super 'T' variable-speed drive motors, the new V*S Drives will commutate up to 200 per cent current for periods of one minute, and will handle even higher transitory peak loads. The Super 'T' motor is supplied as standard with the Super 'T' V*S Drives. The motor features Class "B" insulation and a 60° C. rise.

The new drives are offered in two basic styles—standard and custom. If the operating requirements are extremely complex, the custom control unit will be supplied. In normal industrial applications, the standard packaged system will be offered. Both styles are engineered to meet NEMA I, IA, 5, 12 and J.I.C. specifications.

Besides improved ventilation, both styles of control cabinets are pressurized to prohibit the entrance of dust and external airborne dirt par-

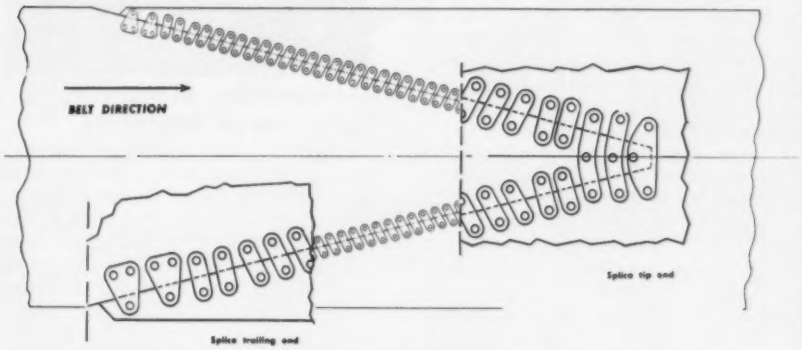
sion and contraction of the plastic, trig or cam-shaped in cross-section

ticles. All ventilating air drawn into the cabinets is thoroughly filtered by oil-type, rechargeable filters.

All leads are numbered to correspond to those on the wiring diagram. Sealpak construction, with complete component circuits embedded in solid blocks of plastic, is used throughout. Channel wiring is featured on all control units.

The new drives feature a pre-set speed control device, and timed acceleration and deceleration. Speed control is available over an 8:1 range by armature voltage, and over a 4:1 range by field control. A variety of operator's stations are available, including independent mounting stations, flush-mounted stations, and explosion-proof stations for operation in hazardous atmospheres.

Complete prices and specifications will be supplied on request by Reliance Electric and Engineering Company, 24701 Euclid Avenue, Cleveland 17, Ohio.



High Tension Belt Splice Requires No Vulcanizing

Substantial savings in labor, materials and equipment shut-down costs are made possible by a recently patented method for splicing conveyor elevator belts. The Wedlok splice, developed by Raybestos-Manhatten engineers, is a high-tension mechanical fastener, rated equal to a conventional vulcanized splice, for operating tensions up to 700 pounds per inch of width on belts of 5 or more plies and thicknesses of ½" and more.

Two rows of No. 2 Flexco bolt and plate fasteners with Monel tops are installed along a V-shaped splice-cut in assembling the Wedlok splice. Specially designed tip and tail fasteners secure the joint at the extremities of the rows of fasteners to assure a permanent seal under operating tensions. Field installation can be completed quickly and easily with only the ordinary tools necessary to make a conventional bolt and plate fastener joint; costly vulcanizing equipment is eliminated.

All special plates and complete instructions included in a Wedlok splice kit and No. 2 Flexco fasteners with templates for accurate bolt and hole location are available through authorized Raybestos-Manhattan marketing channels. Purchase of kit licenses user to make the Wedlok splice under the company's patent. Descriptive brochure No. M 380 is available on request from Manhattan Rubber Division, Raybestos-Manhattan, Inc., Passaic, New Jersey.

New Line of Low-Voltage D-C Motors

Designed to drive portable equipment such as pumps, compressors, fans, lift trucks, and personnel carriers is a complete new line of low-voltage, variable-speed d-c. motors by Reliance Electric and Engineering Co. In a range of ratings from ¼ horsepower at 12 volts through 15 horsepower at 96 volts for either continuous or intermittent duty, the new motors are engineered for applications on movable equipment where compact size and absence of noise and fumes are required.

The motors are available in either protected or totally-enclosed designs, as well as Underwriters' Laboratories and Bureau of Mines approved explosion-proof enclosures. A wide variety of mounting options are available, such as standard foot-mounted for vertical or horizontal mounting, or flange-mounted for either horizontal or vertical installation positions.

Increased brush life, and therefore less maintenance, is provided through the use of heavy-duty industrial brush rigging, says the manufacturers. Brushes have a close-tolerance fit in the brush holder; high-tension brush springs insure even wear.

The new variable-speed motors are available with all standard gear reducers to meet all types of application requirements. Oversized bearings are available on the drive end to enable the motors to operate with high thrust and heavy overhung loads.

The integral horsepower motors are constructed to NEMA industrial specifications and feature Class "B" insulation. The fractional sizes are of rugged industrial design with Class "A" insulation as standard; Class "B" insulation is available.

The entire line of motors is of steel frame construction with cast iron end brackets to withstand moisture, shock, weathering and corrosive elements.

Specifications and pricing information may be had from Reliance Electric and Engineering Company, 24701 Euclid Avenue, Cleveland 17, Ohio.

Full-Flow, Quick-Jointing Plastic Pipe Fittings

A complete line of Victaulic plastic pipe fittings with grooved ends for quick-jointed plastic pipe with Victaulic mechanical couplings are molded in sizes from 1½ to 8 inches in three materials: regular polyethylene, high-temperature liniar-type polyethylene, and polypropylene. Also available are elbows, tees, crosses, 45° laterals, reducers, caps and flanged adapter nipples for joining to bolted flange systems.

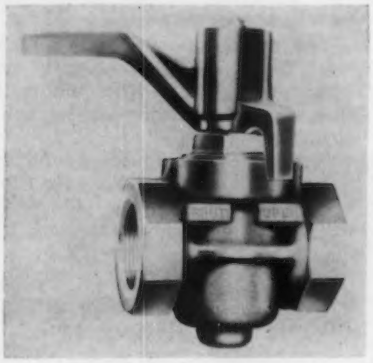
Although light in weight, the plastic fittings can absorb shocks, blows and general on-the-job abuse because the material is inherently resilient. Flush interiors and smooth internal finishes minimize flow friction and

adherence of deposits, Victaulic states.

This coupling method is particularly suited to plastic piping systems because the coupling absorbs expan-

sion and contraction of the plastic pipe. They can perform in a variety of applications without deterioration through age, rot, or chemical action. The quick-coupled joints can be put into service immediately, Victaulic joints out, as they do not require curing.

Contact the Victaulic Co. of America, P.O. Box 509, Elizabeth, N. J., for further information and specifications.



Vacuum Valve Low in Cost and Maintenance

The DeZurik Corp., Sartell, Minn., has just released a line of vacuum valves whose design is based on an eccentric principle. The plug, eccentric or cam-shaped in cross-section, matches an eccentrically-raised body seat. Carried on journals at either end, the plug rotates only a quarter-turn from full open to dead shut. The plug face and seat are in contact only when the valve is closed; in opening the valve, the slightest rotation of the plug breaks the contact, and the valve action is free, easy and frictionless.

Tight shut-off is achieved by the eccentric action in combination with a resilient facing on the plug. The leak rate across the seat on a 3″ valve is certified by DeZurik at less than .003 micron cu. ft. per hour. Certified stem leak rate on valves 3″ and smaller is .01 micron cu. ft. per hour. Each valve destined for high vacuum application is certified by a seat and stem seal test on a helium mass spectrometer type leak detector. Straight through flow and a large port area assure low impedance.

DeZurik vacuum valves are available in semi-steel, stainless steel, ni-resist, bronze, acid resisting bronze, steel, aluminum, Alloy 20, monel, pure nickel, Hastelloy B, Hastelloy C and other alloys; they are manufactured in sizes ½″ through 20″; they can be supplied for manual operation or with on-off or positioning type actuators for automatic and remote control.

Motorized Micrometer is Accurate, Faster

The TMI motorized, dead-weight precision micrometer, assert the manufacturers, makes possible more precise thickness measurements of sheets materials. Because it is not hand-operated, readings are reproducible and will correlate from operator to operator and from plant to plant, and assure that the dead-weight measuring load is always applied in the same way and with exactly the same psi pressure.

Measuring anvils are lapped stainless steel with the lower anvil adjustable by three lock screws to obtain exact parallelism of the measuring surfaces. The cam which lowers the dead-weight loses contact with the load during the dwell period when the measurement is being noted. Thus only the dead-weight exerts pressure on the sheet. The operator has both hands free. Cycling time for each measurement is five seconds but other speeds can be furnished. Most important — measurement of compressible sheet materials such as plastics, paper, and paperboard can now be made with full confidence that the results are not only accurate for present purposes but that the data compiled now will be meaningful in the future, comments TMI.

A complete brochure covering screw type, spring type, and dead-weight in both manual and motorized models is available from Testing Machines Inc., 72 Jericho Turnpike, Mineola, L. I., N. Y.

Compressed Air Dryers Have Large Capacity

Large volume compressed air dryers are now designed with capacities up to 3000 c.f.m. to handle compressor output up to 600 h.p. Their purpose is to extract both water and micronic particles and dry the air to low dewpoint quality in volumes sufficient to protect all plant operations including critical controls, tools and processes against damage by corrosion, pollution, dilution, freezing, etc. These dryers use a triple-action desiccator developed to operate without heat, regeneration, regulation, volume loss, carry-over or appreciable pressure drop. Dewpoint and capacity graphs are available from Van Products Co., 5855 Swanville Rd., Erie, Pa.

Lever Operated Hoist Line Expanded

Shaw-Box Crane & Hoist Div., Manning, Maxwell & Moore, Inc., Muskegon, Mich. announces the expansion of its 'Tugit' line of tool-box size lever-operated hoists to include five models, the present land 2 ton models and now the ¾, 1½, 3 ton capacities.

'Tugit' hoists are built with gearing and load brake instead of the usual long ratchet lever and pawl. They offer the advantage of hoist efficiency, can be operated in extremely close quarters and permit accurate load spotting, state the manufacturers.

Construction features include: compact design with gearing and load brake totally enclosed in an aluminum alloy frame; non-fracturing upper and low hooks that are full-swiveling; link type alloy steel load chain; and a built-in free-wheeling device for positioning of lower hook.

All models are available with various lengths of chain, either plain or safety-type upper and lower hooks, and in standard or spark and corrosion resistant models for use in hazardous or corrosive atmospheres.

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Turrets (handsplice or automatic)

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Knife
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PJT NEWS OF SUPPLIERS

Frank Peterson

O. W. Hein

J. E. Hartford

R. F. Vokes

Black-Clawson Co. . . . Five promotions and transfers of management personnel in the Paper Machine Division, Shartle Division and Corporate Staff were announced by Frank Peterson, president of the company.

The transfers will be effected in stages during the next six months and will be completed by Sept. 15 of this year.

As of May 15, Otto W. Hein, vice president, transfers from his position as general manager of the Paper Machine Division, Watertown, N. Y. to the Corporate Staff as vice president in charge of interdivisional coordination of plant production, industrial relations, and the company-wide capital investment program.

C. C. Landegger

S. T. Weber

He will concentrate on suprevision of shop production activity for all six of the domestic and foreign plants of the company. Mr. Hein will make his headquarters in the Middletown, Ohio plant.

Effective May 15, Joseph E. Hartford, vice president, will be general manager of the Paper Machine Division. He will transfer from his position as general manager of the Shartle Division, Middletown, Ohio. Mr. Hartford has had 20 years experience in the pulp and paper industry as a manufacturer of paper and board and has served as assistant general manager of Black-Clawson's former Paper Machine Division in Hamilton, Ohio, and as general manager for five years of the Shartle Division.

Effective Sept. 15, Robert F. Vokes, vice president in charge of administration, transfers to the position of general manager of the Shartle Division. Mr. Vokes spent 17 years with the Dilts Division where he served in many capacities, including director of research and division general manager.

Carl C. Landegger assistant general manager of the Paper Machine Division, is appointed a vice president of the company. On May 15 he will undertake the position of acting general manager of the Shartle Division and serve until Sept. 15th when he transfers to the corporate office in New York to be administrative vice president.

Samuel T. Weber, sales manager of the Paper Machine Division, is appointed a vice president of the company. His promotion stems from the growth of Black-Clawson in paper and board machine sales. Mr. Weber's early experience was in pulp and paper mills followed by 20 years with Black-Clawson.

American Potash & Chemical Corp. has named Richard L. Reep San Francisco district representative for the company's industrial chemicals.

Announcement of the appointment was made by William M. Clines, western general sales manager, who said Mr. Reep will report to Rod Taft, San Francisco district sales manager, and will cover northern California, northern Nevada, Utah and Colorado. Mr. Reep has been with the company since January, 1957.

Bruce Campbell was named to take over Mr. Reep's activities as representative for industrial chemicals in the Los Angeles area. Mr. Campbell joined the company in May, 1957.

Wica Chemicals, Inc., Charlotte, N. C., have purchased a new Beachcraft Bonanza for the use of A. Walter Ayles, recently appointed manager of the Paper Chemicals Department. Mr. Ayles will fly the plane throughout the Southeastern United States in order to personally serve the many paper mills in that area.

Midland-Ross Corp., J. O. Ross Engineering Division. The Chicago offices have moved into the company's new suburban building at 370 South School Street, Mt. Prospect, Ill. The Hartig Extruder Division, Midland-Ross Corp., and the John Waldron Corp., a subsidiary of Midland-Ross, have also moved their new Chicago offices.

The move was necessitated because the downtown quarters had become overcrowded due to personnel expansions called for by increased demands for the engineering services of the above organizations.

Elliott Co. F. C. Hohenstein has been announced as Chicago district manager succeeding W. E. Widau, who has been Elliott Chicago manager for many years and who is now midwestern regional manager. Mr. Hohenstein, a native of Batavia, Ill., graduated from Purdue in 1944, joined Elliott Co. at that time.

60"
66"
69"

New... LAWSON Pacemaker Hydraulic Clamp Trimmers

More than 60% faster and 20% heavier than comparably sized guillotines, these amazingly accurate Lawson Pacemaker Trimmers are really new from the ground up! Adjustable center bearing on knife bar... adjustable gibs... rear table-slot closing device... performance-proved hydraulic clamping... built-in air cushion device... truly flexible Adjustable Contour Clamp... exclusive electronic spacing to .002"... no other trimmer offers so many profit-stretching advantages! The Lawson Pacemaker Trimmers are as modern as tomorrow. Write, wire or phone for full details, today.

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Paper Trade Journal

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Look for an early announcement of the start-up of American Potash & Chemical Corporation's new sodium chlorate plant at Aberdeen, Mississippi, constructed to supply the rapidly growing southern pulp and paper industry.

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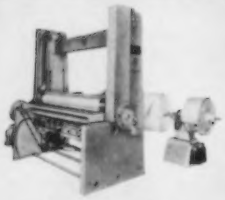

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DILTS DIVISION
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Pennsalt Chemicals Corp. Three new representatives have joined the expanding corrosion engineering products sales department. The new representatives, working out of the company's Natrona, Pa. headquarters for sales and service for all Pennsalt corrosion resistant mortars, protective coatings, and plastic topping compounds, are William S. Ewing, Thomas A. Hanna, and Allen M. Smith II.

A. C. Dreshfield

Glidden Co. Chemicals-Pigments-Metals Division has announced the appointment of Arthur C. Dreshfield as director of paper research and development.

In this newly-created position with Glidden, Mr. Dreshfield will direct all research and development activities as well as technical sales services in connection with the Chemicals-Pigments-Metals Division's constantly expanding program of services to the papermaking industry. He will be headquartered at the Division's new papermaking and coating research laboratory in Baltimore.

D. M. McDowell

Dresser Industries, Inc., Roots-Connersville Blower Division, announced the appointment of D. M. McDowell as director of engineering effective immediately. Mr. McDowell will have responsibility for direction and management of all phases of Roots-Connersville's engineering program.

Mr. McDowell's twenty years experience in engineering and management include work in all major engineering department functions, with special emphasis on the research and development of new products. He has been responsible for the research, development and operation of both defense and industrial equipment including aircraft engines, missiles, missile boosters, stationary and portable air compressors, and industrial and truck engines.

Ben Volker

Fischer & Porter Co., instrument and flowmeter manufacturers. Ben Volker opens the Jacksonville office. Formerly product application engineer with F&P, Mr. Volker is an engineering graduate of Ursinus College, 1951, and a member of the Instrument Society of America.

The Jerome Kinoy Co., 360 S. Broadway, Yonkers, N. Y., has been appointed manufacturers representative by the Appleton Machine Co., makers of pulp and paper mill and packaging equipment.

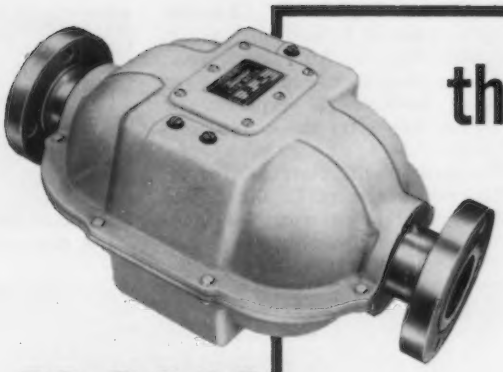
The Kinoy firm will represent Appleton in metropolitan New York and Long Island. Kinoy will handle Gilbert and Nash air guides, filled rolls and products of the Appleton, Wis., firm's Doven Division.

In addition to Appleton Machine Co., Kinoy also represents the Rexford Paper Co., Milwaukee and Wilson Steel, Chicago.

Arkansas Louisiana Chemical Corp., a newly formed chemical firm, has entered the field of chemical manufacture in the Southwest. Initial production of chlorine and caustic soda already is under way, as well as products extracted from natural gas.

A wholly-owned subsidiary of Arkansas Louisiana Gas Co. of Shreveport, La., the firm has taken over the operation of eight natural gas extraction plants formerly operated by the parent firm in Arkansas, Louisiana and Texas. Chlorine and caustic production began Oct. 20 at Pine Bluff, Ark. Sales offices for the corporation have been established in the Slattery building, Shreveport.

E. F. Houghton & Co. have promoted Ellis Abrams and Paul J. Welsh to assistant managers of re-



the meter with NO flow restrictions

now handling all these difficult liquids

Foxboro's first Magnetic Flow Meter went "on stream" in 1954. Today, this new-type meter has gained industry-wide application for precise, linear measurement of corrosive, viscous and other difficult process liquids.

The Magnetic Flow Meter is installed as simply as a length of pipe with no straight runs required. It connects by standard electric cable to remote Foxboro Dynalog* Electronic Recorder. Over-all accuracy of the system is ±1%. And the meter even measures reversing flows.

With easy-to-measure liquids, or with tough ones like those listed below, the performance-proved Foxboro Magnetic Flow Meter provides flow measurement with no line restrictions. For complete details, write today for Bulletin 20-14C. **The Foxboro Company, 232 Norfolk St., Foxboro, Mass.** *Reg. U.S. Pat. Off.

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rubber copolymer
liquid latex
sulphuric acid
70% sodium hydroxide
soap flow
styrol
magnesium hydrate

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beer
grape juice
apple juice
pineapple juice
tomato juice
milk
starch slurry
sugar syrup
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molasses

OIL INDUSTRIES
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phosphoric acid
ethenol extract
scrubber recycle water
urea solution
nitrate solution
spent acid
sodium silicate & water
sodium chloride brine
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sand slurry
ferrous chloride
limestone shale slurry
bauxite slurry
gilsonite slurry
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cement slurry
flue dust slurry
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fresh water
raw sewage
digested sludge
primary sludge
return activated sludge

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MAGNETIC FLOW METERS

search. Responsibility for supervision of textile, paper, and organic research goes to Dr. Abrams who was formerly supervisor of organic research. Mr. Welsh, previously manager of product development, will supervise the company's research in metal working, rust preventives, and lubrication.

Waldorf Paper Products Co., St. Paul, Minn. has appointed Silas Towler sales manager of the container division. He was with The Pillsbury Co., the Downing Box Co. and the Evert Container Corp.

American Potash & Chemical Corp.'s new $4.3 million sodium chlorate plant at Aberdeen, Miss., has gone on stream, and delivery of finished products is expected by mid-February after the usual tune-up period.

The new plant, designed for an initial production of 15,000 tons of sodium chlorate per year, was constructed primarily to supply chemicals to the Southern pulp and paper industry for bleaching pulp and paper.

J. F. Beckman

M. C. Carlson

Kenneth Fietz

H. P. Young

U. S. Industrial Chemicals Co., Division of National Distillers and Chemical Corp., has established a San Francisco sales office, it has just been announced by Alden R. Ludlow, sales vice president Kenneth Fietz, who will be San Francisco manager, has been a representative of the firm's New York Sales Division for the past sixteen years. He will report to Robert E. Alexander, Pacific Coast Division manager at Los Angeles.

American Cyanamid Co.'s Pigments Division announces Dr. L. L. Seivard has been named director of research—organic pigments.

He will be responsible for research and development of new colored pigments.

Dr. Seivard has been with Cyanamid since 1952 when he joined the company's Bound Brook, N. J.

Signode Steel Strapping Co., Board of directors elected three men to the office of assistant vice president: Joseph F. Beckman, M. C. Carlson, Hobart P. Young.

Mr. Beckman has been with Signode for 33 years. For some years, he has directed the sales effort in connection with the steel industry, an important segment of the company's business. Mr. Beckman will function as manager of the steel industry sales division.

Mr. Carlson has been with the company for almost 30 years. He will function as manager of the general sales division.

Mr. Young, who has been assistant to the vice president in charge of manufacturing willl assume the duties of manager of the Glenview Tools and Seals Division. This unit is undergoing a major expansion program.

Frank Scribner

Patton Manufacturing Co. The appointment of Frank Scribner as project engineer has been announced by George S. Herbert, President of Patton. Mr. Scribner received his engineering education at the University of Cincinnati and at Wittenberg College in Springfield.

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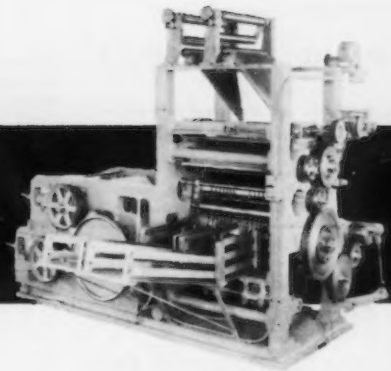

New Napkin Folder with embosser runs open-center napkins! Newest Napkin Folder from PCMCo. is the Model 2066 for running edge-embossed facial type napkins. Vacuum folding produces quarter fold or the popular double transverse eightfold. A name embosser and constant tension, belt-driven unwind are standard on the 2066. In the next converting machinery you buy, get the profitable benefits of *creative* engineering. Contact Paper Converting in the development stage to be sure you have the very latest in converting ideas.

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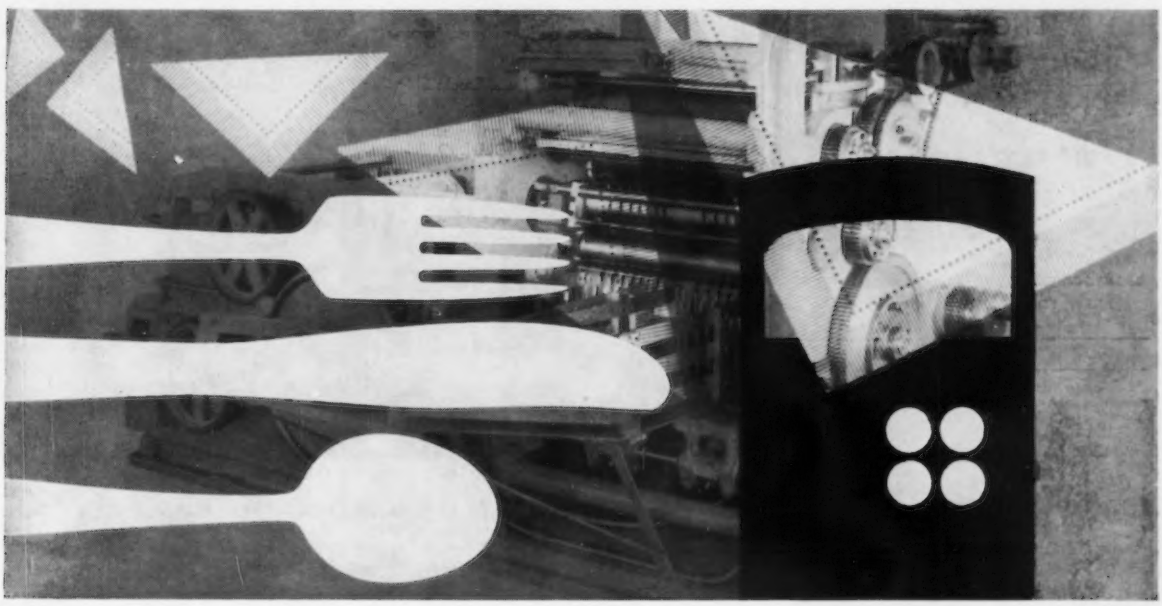

Paper Converting Machine Company (53-123)
This advertisement appears in
PAPER TRADE JOURNAL February 16,
PAPER MILL NEWS March 2, 1959
Prepared by:
The Brady Company,
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Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulhpite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	165.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unbichd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'an		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

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WEEK ENDED FEB. 3

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	$ — /7.25	7.65/7.40
3	$8.00/7.00	$7.00/6.50	7.00/6.50	7.15/6.90
4	7.00/5.75	6.00/5.75	6.25/5.75	6.40/5.90
5	5.75/5.00	5.25/5.00	5.50/5.00	5.75/5.50
6	5.00/4.00	4.50/4.25	4.50/4.25	4.50/4.25
7	4.00/3.00	3.50/3.25	4.00/3.00	3.00/2.75

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York Feb. 9	Boston Feb. 9	Chicago Feb.	Los Angeles Feb.
No. 1 Mixed Paper	$ 10.00/ 11.00	10.00/ 12.00	9.00/ —	13.00/ 14.00
No. 1 News	17.00/ 18.00	18.00/ —	25.00/ —	17.00/ 18.00
Overissue News (Lg. size)	16.00/ 18.00	15.00/ 17.00	30.00/ —	20.00/ 22.00
Mill Wrappers	19.00/ 22.00	16.00/ 18.00	12.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	25.00/ —	24.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	35.00/ 40.00	35.00/ —	55.00/ 57.50
New Double Kr. Ld. Corr. Cuts	35.00/ 37.50	37.50/ —	37.50/ —	35.00/ 37.00
(Semi-chem. medium)	47.50/ 50.00	45.00/ 50.00	45.00/ 50.00	35.00/ 36.00
New 100% Kraft Corr. Cuts	40.00/ 42.50	50.00/ 55.00	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ 57.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ 58.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	62.50/ —	58.00/ 60.00
No. 1 Groundwood Shvs.	25.00/ 30.00	22.50/ 27.50	27.00/ —	35.00/ 37.50
White Newsblanks	60.00/ 65.00	50.00/ 57.50	45.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	55.00/ —	67.00/ 70.00
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	90.00/ 95.00	95.00/105.00	85.00/ —	95.00/ 97.00
Hd. White Env. Cuts	105.00/110.00	110.00/115.00	90.00/ —	113.00/115.00
Col. Tab. Cards	55.00/ 62.50	60.00/ 67.00	52.50/ —	38.00/ 40.00
Manila Tab. Cards	77.50/ 82.50	85.00/ 90.00	75.00/ —	65.00/ —
No. 1 Col. Ledger	35.50/ 40.00	35.00/ 40.00	47.50/ —	32.00/ 35.00
White Ledger	60.00/ 62.50	60.00/ 65.00	57.50/ —	50.00/ 55.00
Mixed Book & Mag.†	20.00/ 23.00	18.00/ 20.00	17.00/ —	— / —
No. 1 Books‡	25.00/ 30.00	20.00/ 22.00	35.00/ —	17.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

TWO BULLETINS FROM HOOKER ON COLD SODA PULPING

Special Considerations toward Improvement of Cold Soda Pulping Process. This recent paper gives results from experimental and practical work with southern red oak, white oak, soft maple, elm, ash, and yellow birch pulps.

The work was directed toward ways to improve the quality of paper and boards made from these various hardwoods. Charts and tables summarize data on such liquor absorption factors as pressure, vasuum, particle size, maisture content, surfactants, and presteaming.

This bulletin is a reprint of a paper prepared by Kenton J. Brown, chemical engineer of the Forest Products Laboratory, Forest Service, U. S. Department of Agriculture. Circle 252 on the coupon for a copy.

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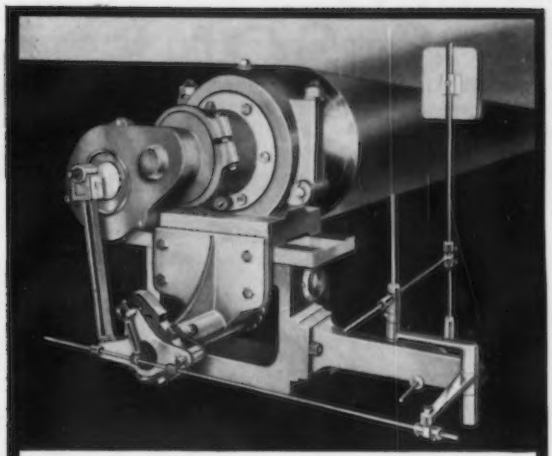

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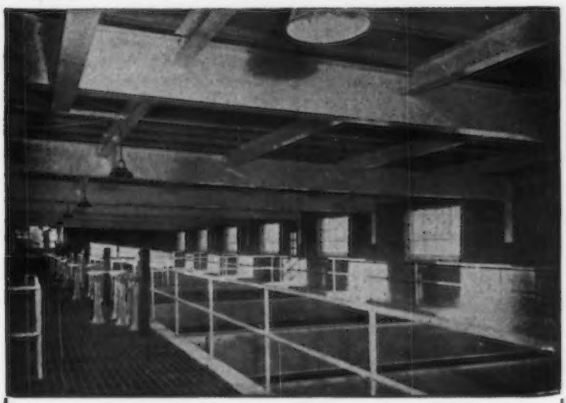

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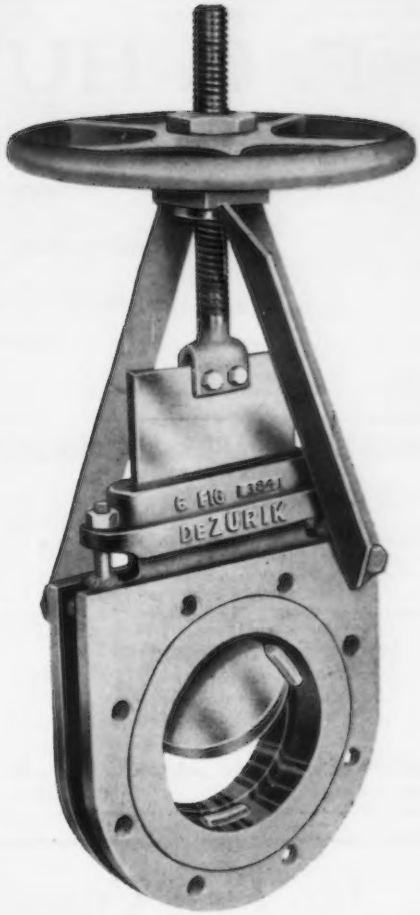

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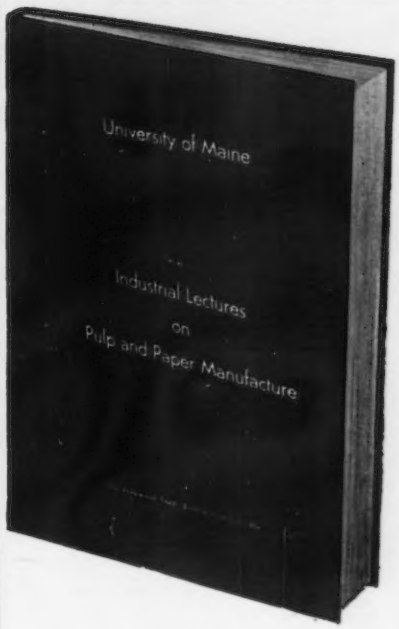

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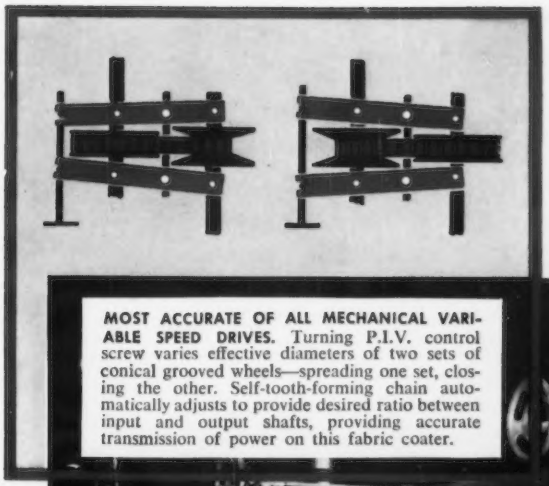

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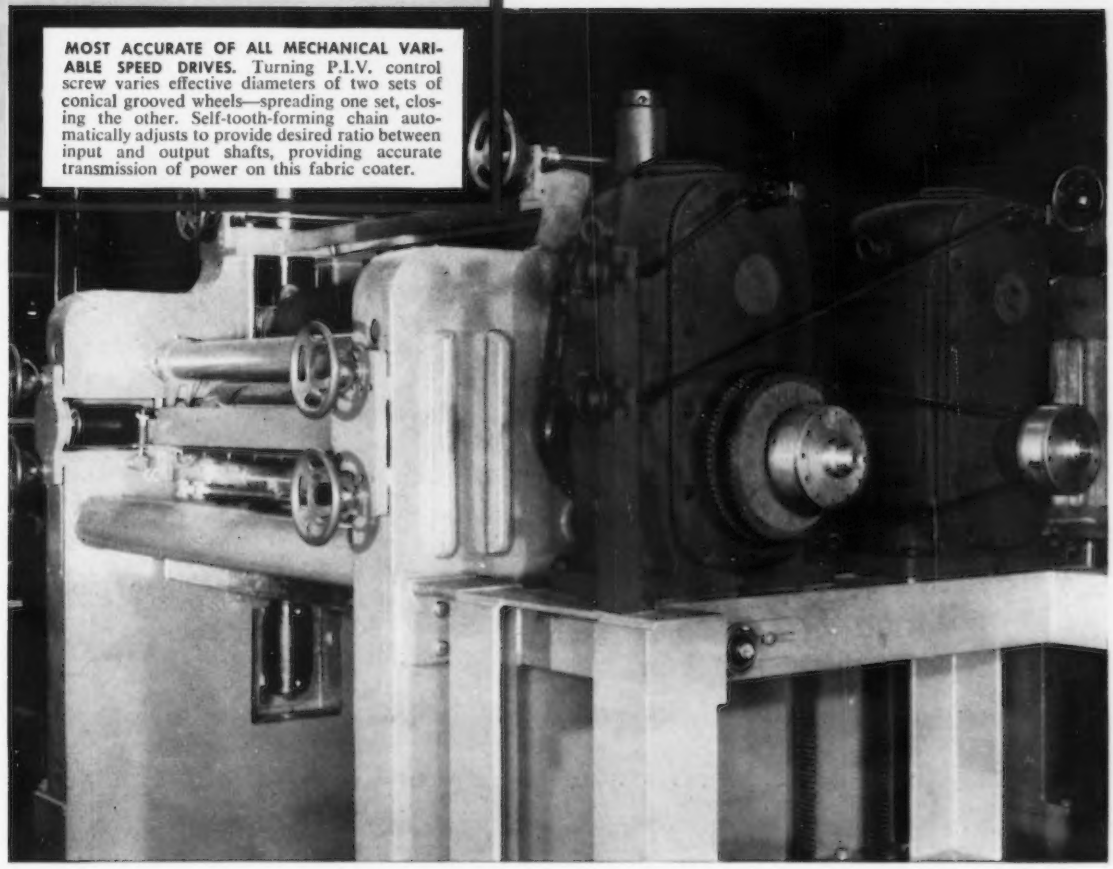

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Here's a variable speed drive that is truly unique. Unlike conventional designs, Link-Belt P.I.V. with its all-metal chain drive is *not dependent on friction* for transmitting power.

P.I.V. permits fast, easy speed changing too. You can select any speed in its range—find it instantly, hold it indefinitely. No bother stopping the drive.

Because Link-Belt P.I.V. (Positive, Infinitely Variable) drives are fully enclosed, atmospheric conditions can't affect their efficiency. They're made in 8 sizes, 16 standard types. Ask your nearest Link-Belt office or authorized stock-carrying distributor for Book 2274.

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LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World. 14,342

Photo courtesy Endura Corporation, Quakertown, Pennsylvania

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